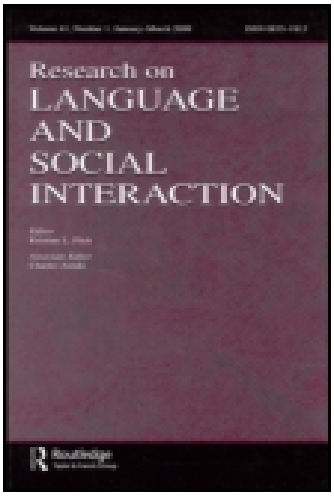

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Enabling Better Conversations Between a Man With Aphasia and His Conversation Partner: Incorporating Writing Into Turn Taking

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We are very grateful to Barry and Louise (pseudonyms) for their enthusiastic participation in this study. Professor David Howard provided invaluable statistical advice and resources, for which we thank him. The analysis presented extends the work of three University College London masters students: Ellie Brooks, Vicki Edwards, and Juliet Summerscale. We thank them for their work on the counts reported here. Juliet Summerscale's CA transcriptions were refined by the first author, who also produced the analysis.

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This article reports an intervention in the conversations between a man with chronic aphasia, Barry, and his wife, Louise (both names are pseudonyms). Preintervention analysis revealed the potential of writing as a resource for turn construction. Intervention consisted of enabling Barry to use writing to produce more complete turns at talk, thereby increasing the likelihood of mutual understanding, and encouraging Louise to modify her responses to Barry's turns and thus enhance his interactional potential. Quantitative analysis revealed that Barry significantly increased his use of writing after intervention, but there was no change in other trained strategies. Louise eradicated correct production sequences (designed to elicit the correct production of a word despite her knowing the target) but did not implement trained strategies. In conclusion, individually tailored input underpinned by Conversation Analysis principles can alter the conversational behavior of a person with aphasia. It appears easier for a conversation partner to reduce unhelpful behaviors than to adopt facilitatory strategies. Data are in British English.

Since the early 1990s, the application of Conversation Analysis (CA) to aphasia, a language disorder most commonly caused by stroke, has revealed that some of its distinctive language behaviors, far from arising randomly as a result of brain damage, may be motivated by the drive to take a turn at talk in everyday conversation. One example is telegraphic speech, a disruption to the grammatical form of language that is typical of agrammatic aphasia, characterized by reduced complexity of syntactic structure, omission of morphological elements, word-order problems, and reduced ability to produce verbs. Agrammatic aphasia has been shown to influence turn-construction practices in several distinctive ways. These include "sparse" constructions designed to encourage a conversation partner to articulate a full version of an aphasic speaker's meaning (Heeschen & Schegloff, 1999, 2003), and a systematic pairing of telegraphic turn construction with social action, such that different forms appear to convey distinct types of action, such as topic talk, comment, and assessment (Beeke, 2012; Beeke, Beckley, et al., 2013). But for many people with agrammatism, conversation is severely disrupted, with turns commonly remaining incomplete and often failing to convey a clear conversational action.

Alongside CA explorations of aphasia, in the clinical world of speech and language therapy interventions, conversation partner training has become influential (for a review see Wilkinson, 2014/this issue). The primary focus has been on training the nonimpaired communication partner (CP). A recent systematic review of this type of intervention has shown it to be effective and noted improved participation in conversation for people with chronic aphasia talking to a trained CP (Simmons Mackie, Raymer, Armstrong, Holland, & Cherney, 2010). Only recently has research begun to focus on the question of whether it is possible to train the person with aphasia (PWA) him- or herself to use strategies when faced with conversation breakdown (see Wilkinson, 2010; Wilkinson & Wielaert, 2012). This work appears to have promise, since it potentially affords a PWA some measure of interactional influence and less dependence on a skilled (i.e., trained) CP.

This article reports intervention outcomes for a man with agrammatic aphasia, Barry, and his wife, Louise (pseudonyms), who took part in a larger program of conversation training involving eight couples, funded by the Stroke Association (see also Beckley et al., 2013; Beeke et al., 2014). The intervention examined the utility of working directly with a PWA (as well as their CP) on strategy use in conversation. This article aims to investigate whether, for Barry and Louise, increased insight into the workings of their conversations, and knowledge of interactional behaviors each could use in the face of aphasic disruption, led to qualitative change in their posttherapy conversation behaviors.

Barry, formerly a gardener and book illustrator, had a large left hemisphere stroke in 2008 at the age of 58, which caused aphasia. After daily speech and language therapy for six weeks, he subsequently had weekly sessions for a year. He joined the main project 17 months after his stroke. He appeared to have no difficulty comprehending in a conversational setting, though language testing revealed some difficulty with comprehension of spoken sentences (a score of 67.5% on the Verb and Sentence Test; Bastiaanse, Edwards, & Rispens, 2002). His main difficulty was spoken language, namely, moderate to severe word-finding difficulties (scores of 40% and 50% respectively for naming pictures of objects and actions, Object and Action Naming Battery; Druks & Masterson, 2000) and severe problems with sentence construction (a score of 15% on the Verb and Sentence Test; Bastiaanse et al., 2002). He was also noted to have a mild dyspraxia, an articulatory difficulty. Despite the stroke, Barry is fully mobile; he writes with his right hand and still drives. His main conversation partner is his wife Louise, a housewife in her early 60s at the time of the project. The couple have an active social life.

DATA

The main project was granted multisite National Health Service ethical approval from Cambridgeshire 1 Research Ethics Committee (project ID 08/H0304/40). Barry and Louise were involved in six months of intervention, subdivided into three phases of eight weeks each: (a) pretherapy baseline assessment, (b) therapy, and (c) posttherapy follow-up assessment. All sessions took place in their home once a week for around 1.5 hours. Assessment involved language tests and interviews about the effects of Barry's aphasia on their lives and conversations (for an assessment schedule, see Beckley et al., 2013). They also took part in a semistructured interview 12 months after the end of the intervention with the second author (a speech and language therapist [SLT] but not the one who conducted therapy) seeking their views on the experience. In addition, they independently video recorded weekly conversations of approximately 20 minutes in length during the eight weeks before and after intervention (labelled C1-8 and C11-18, respectively), at a time when they would normally sit down for a chat, to catch up on events; there were no suggested topics. They also recorded two conversations during the intervention (C9 and C10), not analyzed here.

CA was used to analyze preintervention conversation patterns with the aim of motivating targets for intervention (explained later), and to uncover qualitative change in postintervention conversation behavior. This was supplemented by quantitative analysis (see Robinson & Heritage, 2014/this issue, for a discussion of such analyses in conversation analysis interventions in medical settings). Having identified behaviors of note—referred to during therapy as facilitators and barriers—counts were made of these behaviors in twelve 5-min video samples, taken from six pre- and six posttherapy conversations, and statistical analysis conducted to uncover any significant change after intervention. To minimize participant awareness of being video recorded, we discarded C1, the very first conversation, and C18, the final posttherapy sample. Of the remaining 14 samples, to date we have counts for 12 (C2-4 and C6-8 pretherapy, and C11-14 and C16 and C17 posttherapy), and this analysis is reported here. Where a sample was 10+ min in length, sampling began from 5 min onwards. If a sample was less than 10 min in length, the final 5 min were selected for analysis.

The counts are the work of three masters students of speech and language therapy at University College London, who study applied CA as part of their degree and were trained to identify key behaviors of interest in the samples. At the time of rating, all were "blind" as to sample collection dates. In some cases, it was possible to ask two students to independently rate the same sample and to agree on counts for individual behaviors; where available, we report agreed counts, even when the counts are zero. Otherwise counts by an individual student are reported. A weighted Poisson trend test for frequencies, derived from a Jonckheere Trend Test, was applied to identify whether there was a significant change in counts after therapy (David Howard, May 2011, personal communication). It should be noted that, if the number of observations in any condition is less than 5, the z score approximation may not be accurate. Because of the directional hypothesis for change (that is, after therapy, facilitators will increase and barriers decrease), we employed one-tailed tests.

ANALYSIS

Qualitative investigation of preintervention conversations using CA revealed the disruptive impact of Barry's severe word-finding difficulties on turn construction. One way in which he appeared to be compensating for this difficulty was by switching to writing, having signalled interactional trouble—he was then often able to write the word that he could not say. Sometimes he then read the word aloud and thus completed the repair verbally. With respect to writing as a resource for turn construction, Louise often asked Barry to say the word aloud after he had written it down; she did not respond to the conveyed meaning until it had been verbalized. Louise's requests for a spoken version can be characterized in terms of a phenomenon that Lock, Wilkinson, and Bryan (2001) refer to as a "correct production sequence." This has been described as a series of turns designed to elicit a correct production, even though the conversation partner already knows the target (see also Lindsay & Wilkinson, 1999). In such sequences conversation partners may actually withhold information in order to obtain a particular response from a PWA, even though understanding has already been achieved.

Correct production sequences are commonly noted in the interactional context of words produced with articulatory distortions. Their presence here, in the context of writing-for-turn-construction represents a variation in this interactional pattern. Louise's response to writing could be construed as nonacceptance and thus be seen as a threat to Barry's interactional competence. However, Barry did not show signs of this behavior being unwelcome; such sequences had the feel of long-established routines in which both participants appeared fully engaged. But it remained the case that Louise's response to Barry's writing derailed their preintervention conversations by causing Barry's aphasia to become the focus of the interaction. Extract 1 has been chosen to illustrate these preintervention conversation behaviors.

Extract 1: D6C2a Can you say it now you've written it down

Barry has a notepad in front of him and a pen in his hand.

01	Louise	we'll go out today (.) yes?
02	Barry	(0.8) yes (0.3) no it's a- (0.3) it's a go to (0.7) (um mum) eh no (0.8)
03		(ella) Bella,

	04	Louise	yeah ⌈we'll g-⌉ yes we'll go and see Bella to ⌈day=
	05	Barry	⌊Bella ⌋ ⌊(Bel) yeah
	06	Barry	(1 syllable) and, (2.7) it's a (3.8) (amdea) Hamdean
	07	Louise	go to Ham⌈dea- ⌉ >if we've got time<
	08	Barry	⌊NO ⌋
	09		no
	10	Louise	Galileo? {*transcriber's note: the name of a shopping centre*}
	11	Barry	(0.4) no
	12	Louise	°no°
	13	Barry	(0.5) ⌈is (there) ⌉ ⌈(0.6) (were) have to go
			⌊*((drops pen))* ⌋ ⌊*((picks it up and prepares to write))*
	14	Barry	⌈(19.0) ⌈(there)?
			⌊*((writes on pad, Louise watches))* ⌊*((pushes pad towards Louise))*
→	15	Louise	⌈can you say it ⌈now you've written it down=
			⌊*((smiley voice))* ⌊*((looks up at Barry))*
	16	Barry	⌈=no::: (0.2) um
			⌊*((still gazing at pad, puts pen down, raises hand to forehead))*
→	17	Louise	(1 syllable) look ⌈(at) ⌉
			⌊*((index finger to mouth))*⌋
	18	Barry	⌈yeah=
			⌊*((looks at Louise))*
	19	Louise	wuh w⌈uh ⌉ w⌈eh: ⌉
	20	Barry	⌊wuh ⌋ ⌊weh ⌋ euli Welwyn
	21	Louise	Wel ⌈wy::n
	22	Barry	⌊Welwyn
	23	Louise	⌈*((mouths gar)*
	24	Barry	⌊Garden
	25	Louise	⌈(0.2) ⌉ °s::::°
			⌊*((mouths s))* ⌋
	26	Barry	City
→	27	Louise	⌈well done! hah hahh ⌈heh heh heh °hhhhhhhh
			⌊*((claps silently and smiles, Barry looks down at notepad))*
	28	Barry	|°hah hah hah hah°
			⌊*((smiles, picks up tea, still looking at pad))*
→	29	Louise	good
	30	Barry	°yeah°
	31	Louise	yeah
	32	Barry	(mm)
→	33	Louise	well done you
	34		(1.3)
	35	Louise	taking me to the shops! (0.2) (don't) believe it

Barry's severe word-finding difficulties impact on his ability to construct turns over lines 02–03 and 05–06; there is evidence of lengthy pausing, fillers, and cut-off phrases. This extract illustrates another feature of Barry's turns, the use of recurring construction frames <(it) is a> (lines 02, 06, 13) and <(have) to go (to)> (line 13), both of which project a noun (a major problem for most people with aphasia), and consist of all-purpose, "easy to produce" grammatical forms, with light verbs (impaired verb retrieval and limited sentence structure is a hallmark of

agrammatic aphasia). See Wilkinson, Beeke, and Maxim (2003) and Beeke (2012) for discussion of whether such fragments can be said to be symptoms of, or adaptations to, aphasia.

The trouble source appears to be Hamdean (line 06), a place name, but not the intended one—Barry rejects it in line 08, along with Louise's more specific suggestion of the shopping center that is located there (lines 10 and 11). Over lines 13 and 14, Barry launches a repair attempt, which involves writing the name of the place where they should go.

In line 15 Louise, having gazed intently at what Barry has written, launches a correct production sequence by asking "can you say it now you've written it down." Her delivery is very "gentle," with a smiley voice, and Barry seems genuinely engaged in the puzzle of trying to read his writing (line 16), so much so that Louise has to ask him to look at her (line 17) before she offers a series of cues to aid his production. With her help over lines 19–26, Barry succeeds in saying the target place name "Welwyn Garden City." Louise's behavior here is reminiscent of an SLT supporting a person with articulation difficulties (dyspraxia), which Barry has. The sequence closes with a series of evaluative statements from Louise (lines 27, 29, and 33); Barry's contribution about going to Welwyn has been lost. The ensuing laughter may signal a mixture of relief and pleasure for them both in successfully negotiating the correct production sequence. In the final line, we see Louise attempting to move away from the issue of Barry's aphasia, which has been the focus of the last 20 lines of talk, by making a joke about his seeming to offer to take her shopping.

INTERVENTION

The ultimate goal of this conversation training program was for Barry and Louise to make spontaneous use of the strategies they chose to work on in therapy, when faced with conversation breakdown. The intervention, called *Better Conversations With Aphasia* (Beeke, Sirman, et al., 2013; freely available at https://extend.ucl.ac.uk), is based on SPPARC (Lock et al., 2001) and is aimed to raise insight into the effects of agrammatism on conversation and teach strategies to allow (a) Barry to produce more complete turns at talk, thereby increasing the likelihood of mutual understanding; and (b) Louise to modify her responses to Barry's turns, and thus enhance his interactional potential. Strategies were anchored in the interaction, reflecting research on the adaptive turn construction behaviors of individuals with agrammatism (see Beeke, 2012, for a review) and CP strategies that have been found to aid the flow of conversation (Lock et al., 2001).

The intervention program consisted of eight weekly sessions, each lasting approximately 1 to 1.5 hours. Session 1 provided an introduction to conversation and agrammatism; session 2 focused on turns, sequences, and actions; and session 3 explored repair. During these early sessions, Barry and Louise viewed short clips from their pretherapy conversations to facilitate discussion about key features (both positive and negative) of their interactions. This included clips showing Barry's successful use of writing to circumvent his word-finding difficulties and Louise's response to writing; the concept of a correct production sequence was explained to them. Sessions 4 and 5 supported the dyad to choose up to three strategies each (from a restricted set of suggestions) to practise, with session 4 focused on Barry and session 5 on Louise. Barry chose to work on writing and drawing (presented as one strategy), gesture, and using a key word to identify the topic of talk. Louise chose to let the conversation continue (for further clues/so Barry could use his strategies), use a passing turn, and paraphrase Barry's prior turn. Reflecting on video clips

of their own conversations was still key, with each of them identifying what went wrong, and then considering what he or she could have done differently (what strategy to use). Session 6 explored the concept of topic and who sets it. In sessions 7 and 8, the dyad actively practiced using their strategies in role-plays that were videotaped to allow immediate feedback on the consequences of their conversational behaviors.

EVALUATION

Here we present counts of Barry's and Louise's chosen strategies, and of correct production sequences, for six pre- and six postintervention samples (60 minutes in total; 30 minutes before and 30 minutes after intervention). Statistical analysis is used to identify whether therapy had a significant effect on these behaviors. This is followed by a qualitative analysis of a representative writing sequence taken from their postintervention conversation data.

Table 1 summarizes the effects of therapy on Barry's and Louise's targeted facilitators. For Barry, the PWA, only the strategy of writing/drawing increased significantly in posttherapy samples: Poisson trend for frequencies (one-tailed), writing ($z = 2.50$, $p = .0063$). (Note that there were no counts of drawing in pre- or posttherapy samples; the camera angle did not allow for differentiation of writing from drawing). As both the counts in Table 1 and the qualitative analysis of Extract 1 reveal, Barry was making some use of writing before therapy, so the result reflects increased use of this behavior, rather than adoption of an entirely new strategy. There was no significant effect of therapy on gesture ($z = -0.29$, n.s.) or key words ($z = 0.79$, n.s.). While numerically, gesture counts are stable, key words showed a slight increase, from a pretherapy total of 26 to a posttherapy total of 32. For Louise, the CP, there was no significant effect of therapy on strategies that she chose to work on: Poisson trend for frequencies (one-tailed), "let the conversation continue" ($z = 1.0$, n.s.), "passing turn" ($z = -1.0$, n.s), "paraphrase" ($z = 0.00$, n.s.). For each strategy, the numerical data for pretherapy and posttherapy total counts are relatively stable, as are the means. However, there was a significant result for correct production sequences, a behavior in Louise's conversations linked to the nonacceptance of writing as a form of communication: Poisson trend for frequencies (one-tailed) correct production sequences ($z = -2.65$, $p = .0041$). Thus, for Louise, behavior change as a result of therapy constituted the eradication of an unhelpful conversation behavior, but there was no corresponding increase in her three chosen strategies, which remained at pretherapy levels.

A qualitative analysis of postintervention samples reveals that Barry continues to use writing as a resource for turn construction in the face of word-finding difficulty, as was seen before intervention. However, now Louise treats writing as an integral part of Barry's strategies for meaning making, and correct production sequences have disappeared from their conversations. Extract 2 has been chosen as a representative example of this change. Because of the extensive use of writing, this is a long sequence; therefore it is presented in two parts.

Extract 2: D6C17 Billy's Welsh group (Part 1)

Barry and Louise have been discussing who will give Barry's mother her medication whilst they are away, and have concluded that Barry's brother Billy will do Tuesday. At line 07, Louise refers to her mother-in-law's pills.

01	Louise	so Billy's only gotta do the Tuesday when he's in Wye anyway
02	Barry	yes

	03	Louise	yes that's good
	04	Barry	yeah
	05	Louise	oh that's fine
	06	Barry	is it ⌈(they) ⌈is (he) (4 syllables) (in it-) ⌉ (wuhhy) why,
			⌊*((shakes his head, looks puzzled)*
	07	Louise	⌊so we'll have to remember to leave them then ⌋
	08		⌈(2.0)
			⌊*((Barry makes eye contact with Louise))*
	09	Louise	we won't ↑be here=
	10	Barry	⌈=no. ahhhh (0.4) why, (.) Billy (.) ⌈ (to do eh) (.) (or)
			⌊*((smiles, looks away, raises hand to forehead))* ⌊*((looks at Louise, holds out hand))*
	11		⌈(2.5)
			⌊*((looks down, reaches for writing pad and pen))*
	12	Louise	I thought you didn't want to involve the carers=
	13	Barry	=>no nuh no no no<
	14	Barry	⌈(1.8) ⌉ Billy,
			⌊*((prepares to write))* ⌋
	15	Louise	⌈ye::s
			⌊*((looks at pad))*
	16	Barry	⌈(7.4) ⌉ °(who's that)°
			⌊*((writes, looks at what he has written, taps it then looks up))* ⌋
→	17	Louise	waulsh
	18	Barry	°no°
	19	Louise	walsh
	20	Barry	no ⌈(3.3) hehhh
			⌊*((looks briefly to middle distance, then begins to rip page out of writing pad))*
	21	Louise	hahhh that says walsh
	22	Barry	⌈yeah
			⌊*((finishes ripping out page then positions pen to try again))*
	23	Barry	⌈(7.0)
			⌊*((appears to be drawing a shape))*
→	24	Louise	⌈England.
			⌊*((looks at pad))*
	25	Barry	⌈°yeah°
			⌊*((continues drawing))*
→	26	Louise	⌈Wales.
			⌊*((looks at pad))*
	27	Barry	⌈°yeah°
			⌊*((taps part of drawing?))*

In line 06, Barry appears to ask a question in relation to Billy, the subject of lines 01–05. The intelligibility of his turn is affected by dyspraxia; the clearest elements are the word "why" and his head shake and puzzled expression. At the same time, Louise starts up with a turn about leaving her mother-in-law's pills for Billy (line 07). After a 2-s pause, she responds to Barry's question as if it relates to why Billy has to do the medication on Tuesday ("we won't be here"); her intonation appears to signal surprise that Barry needs to ask this.

TABLE 1
Barry and Louise: Counts of Strategies and Barriers in Pre- and Posttherapy Conversation Samples

	Pretherapy							*Posttherapy*						
Sample	*C2*	*C3*	*C4*	*C6*	*C7*	*C8*	*Total Pretherapy (Mean per Sample)*	*C11*	*C12*	*C13*	*C14*	*C16*	*C17*	*Total Posttherapy (Mean per Sample*
PWA chosen strategies														
writing (and drawing†)	1*	0	0	0	1*	0	2 (0.33)	2	1*	5	0	2	1*	11 (1.83)
gesture	4*	3	4	2	1*	10	24 (4)	5	1*	11	1	3	1*	22 (3.67)
key word	3*	6	4	6	1*	6	26 (4.33)	10	3*	6	3	5	5*	32 (5.33)
CP chosen strategies														
let conversation continue (pause)	0*	0	1	0	0*	0	1 (0.2)	0	0*	2	1	0	0*	3 (0.6)
passing turn	0*	0	1	0	0*	0	1 (0.2)	0	0*	0	0	0	0*	0
paraphrase	0*	4	8	1	0*	1	14 (2.8)	5	0*	2	5	2	0*	14 (2.8)
CP targeted barrier														
correct production sequence	0*	2	0	3	0*	2	7 (1.17)	0	0*	0	0	0	0*	0

†Writing and drawing were presented together as *one* strategy choice during therapy. There were no clear instances of drawing in pre- or posttherapy samples (the camera angle did not facilitate differentiation of writing from drawing); these counts represent writing.

*Counts with an asterisk were agreed upon by two independent raters; all other counts were generated by a single rater. All raters were blind to sample collection dates.

Barry's response at lines 10 and 11 reveals that this was not his question; after a wry smile and another attempt that runs into trouble, he prepares to write, rejecting a second comment from Louise about the carers (lines 12–13). Before writing, he reiterates Billy's name, thus verbally reintroducing the key referent before continuing his (written) turn; Louise acknowledges this while looking at his notepad (lines 14–15). As in Extract 1, after writing, Barry signals that Louise should read what he has written ("who's that," line 16). However, this time Louise does not ask him to read his writing aloud, instead she "animates" the turn he has "authored" in writing (see Wilkinson, Bloch, & Clarke, 2011), saying "waulsh" then "walsh" (lines 17 and 19). But there is some problem; Barry rejects her attempts and laughs before adding more graphical elements to his turn (lines 23 and 25). This time he appears to be drawing, though it is difficult to tell, given the camera angle. Louise offers first "England" then "Wales" in response. Once again, we see her collaborating with Barry to clarify his meaning; her preintervention focus on Barry correctly producing spoken language is not in evidence here.

Extract 3: D6C17 Billy's Welsh group (Part 2)

→	28	Louise	is	⌈Billy in Wales?
				⌊*((they make mutual eye contact))*
	29	Barry	⌈no! (3.4) heh	
			⌊*((grins, shakes his head))*	
	30	Barry	⌈(1.2) tues- (0.3) ⌈Tuesday,	
			⌊*((looks down at pad))*	
	31	Louise		|Tuesday,
				⌊*((looks at pad))*
	32	Barry	⌈eh	
→	33	Louise	⌊he's got his	⌈Welsh group.=
				⌊*((looks up at Barry))*
	34	Barry	=yes=	
	35	Louise	=<u>yes</u>	
	36	Barry	=oh right!=	
→	37	Louise	=oh ye- >oh well I don't< <u>kno:w</u>! I mean he hasn't <u>spoken</u> about it very much=	
	38	Barry	=no	
	39	Louise	has he	
	40	Barry	(oh no)=	
	41	Louise	=I think he might have- (0.3) I don't know whether he's given it up or	
	42	Barry	(I dun ⌈no)	
	43	Louise	⌊no	
	44	Barry	⌈bu-	
→	45	Louise	⌊but he: that is usually his day for going=	
	46	Barry	=yes ⌈yes yes ⌉ yeah yep (.) ↑yeah	
	47	Louise	⌊yes yes ⌋	

In Part 2 of this sequence, having established that Barry is conveying something related to Wales, Louise provides her first guess as to his full meaning "is Billy in Wales?," demonstrating an integration of the referent established in line 14 with the meaning conveyed by Barry's drawing. But this is not what Barry means to say; he grins again, clearly amused by the difficulties they are having. After he restates the importance of Tuesday (when Billy will give the medication) in line 30, and with both of them still focused on the notepad, and thus on the drawing of Wales,

Louise finally understands ("he's got his Welsh group," line 33). This is presented as a statement of fact—there is no understanding check needed.

There then follows an exchange over lines 34–43 where they work to fully understand each other's position. Barry expresses surprise that Louise knows about Billy's Welsh group, and Louise works to clarify that although she knows in theory that a Tuesday is the day for it, she doesn't know for sure if he will go on this particular Tuesday (he hasn't mentioned it, he might have given it up). At no point does Barry's aphasia become relevant; they appear to be involved in a typical exchange to answer Barry's original question, his puzzled "why" in line 06. Louise sums up with "that is usually his day for going" (line 45), again demonstrating that she is treating the verbal and graphic elements of Barry's turn as contributing equally to his meaning.

DISCUSSION

The aim of this CA-based program of conversation therapy was to change the behaviors of both Barry, a man with aphasia, and his wife, Louise, such that they were better able to use and respond to strategies for dealing with aphasic conversational breakdown. The quantitative results reveal that intervention had a significant effect on the conversational behaviors of both speakers.

After the intervention, Barry used significantly more writing, one of the three strategies he chose to work on, although gesture remained at preintervention levels, and key words showed a numerical, but not statistically significant, increase. CA investigation of writing sequences pre- and postintervention did not reveal obvious differences—Barry was already using writing as a turn-construction resource beforehand, often in the presence of aphasic word-finding difficulties, and he continued with this afterwards but used it on more occasions. We might hypothesize that gesture, a strategy he also used before intervention, did not increase in frequency because it did not afford the same semantic potential for turn construction as writing. In terms of key words, it seems likely that his word-finding difficulty curtailed any significant increase in this strategy (the intervention did not aim to improve his spoken-word production). It is interesting to note that, from a clinical viewpoint, Barry's writing does not appear to be an obvious strength—he scored only 47% on preintervention assessment of writing single words in response to line drawings (subtest 53, Psycholinguistic Assessments of Language Processing in Aphasia; Kay, Lesser, & Coltheart, 1992). However, observation of the use of writing in conversation appears to suggest he is often able to write words that he cannot say. It is not possible to comment on the accuracy of his writing (this would have required a separate camera or access to his notebook after filming), though Extract 2 suggests he has difficulty with the spelling of "welsh" (Louise first reads "waulsh," then "walsh"). Nevertheless, Barry's writing appears highly functional as a turn-construction resource. This suggests, as clinicians planning training targets for conversation-based interventions, we should observe the potential of such strategies in interactional contexts as well as perform decontextualized assessment.

For Louise, behavior change as a result of this intervention constituted the eradication of an unhelpful conversation behavior (correct production sequences), but there was no corresponding increase in her three chosen strategies, which remained at pretherapy levels (letting the conversation continue, using a passing turn, paraphrasing Barry's prior turn). Therapy aimed to reduce behaviors such as correct production sequences indirectly: It was hypothesized that such

"barriers" would fall away as other positive conversational behaviors came online. However, this does not appear to be the mechanism for behavior change that operated for Louise (or indeed for two other CPs involved in the main study; see Beeke et al., 2014).

It seems possible that a single, very distinctive, conversational barrier like asking one's conversation partner to read their writing aloud might be avoided with relative ease once one has seen it on video, is able to identify it reliably in other interactional contexts, and has insight into its negative effects though discussion with that person and an SLT. However, more complex behavior change is likely to be required to deploy a facilitative strategy, not least because one is at the mercy of the interaction itself—it may be that, having learned a fixed strategy, the interactional context in which to use it does not arise that often. These ideas clearly have important implications for any CA-based training, not just for aphasia therapy, and suggest that as well as evaluating the conversation changes that are brought about by such interventions, researchers need to explore their "active "ingredients," the determinants and mechanisms that drive behavior change. Tools and theories for examining behavior change abound in the health psychology literature (see, for example, Michie, van Stralen, & West, 2011; Michie & West, 2011). Research into behavior change mechanisms in conversation therapy for aphasia is currently under way by the authors, led by Johnson.

Finally, it is enlightening to consider a semistructured interview with Barry and Louise, carried out 12 months after the end of their involvement in the project. In essence, they also identified increased use of writing, and a focus on communicating rather than speaking correctly, as key outcomes:

SLT: What happened in the therapy?
PWA: It's that (points at notepad?)
SLT: So, lots of talking about paper and pens.
PWA: Well no. It's I go here . . . average. No it's there. That.
SLT: So it's about you making sure you've got paper and pens
PWA: Yes, yes. Good, I think yes.
[. . .]
SLT: It's about using the pen and paper more, you didn't used to carry it round with you, but now you do.
PWA: Yes yes, good.
SLT: What about you Louise, tell me about the therapy as you remember it.
CP: Well it made us realise that it doesn't matter how you converse. You don't have to talk, you can use tools such as writing, gestures, y'know and it doesn't matter, as long as you find your way of communicating and to listen, y'know, to give Barry time to listen . . . which I don't always do!
PWA: No
(laughter)
CP: I think that's what came out of it. Instead of concentrating on oh Barry MUST speak, we must do this, we must do that. No. Communicate!

In conclusion, individually tailored input underpinned by CA principles can alter the conversational behavior of a person with aphasia. Although a conversation partner's behaviors can also be successfully targeted for change, it may be easier to reduce unhelpful behaviors than to adopt facilitatory strategies.

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