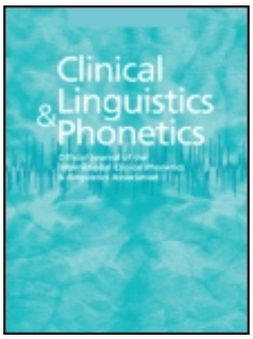

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Joint productions as a conversational strategy in aphasia

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Abstract

To address the longstanding question of the conversational ability of persons with aphasia, this study investigated the spontaneous occurrence of a specific type of conversational collaboration, joint production, that is known to occur in the conversation of ordinary speakers. A person with aphasia and his wife videorecorded eight of their naturally occurring conversations. These conversations were analysed and three types of joint productions were identified: word search, turn completion and appendor production. Additional sequential analysis revealed the linguistic, paralinguistic and contextual resources available to the interactants in designing their joint production. Results showed that, despite the presence of aphasia, this couple was able to successfully employ joint production as an interactive technique leading to conversational success. Implications of this study are discussed relative to the understanding of communicative ability of persons with aphasia and how aphasia is diagnostically and therapeutically approached.

Keywords: aphasia, conversation, spouse interaction.

Introduction

A recurrent observation by clinical aphasiologists is how well some couples communicate despite one of the partner's aphasia. It is not uncommon to note how a family member can understand an utterance that seems to make no sense to others. When family members are asked how they do this, they often offer explanations like 'I could tell by the look in his eye' or 'We've lived together so long, I can think of what she wants to say.' These explanations have some face validity since 'knowing what's on another person's mind' is a phenomenon often described even in mundane situations and by ordinary speakers.

These types of 'folk explanations' are actually generalizations that speak to the power and complexity of social interaction through conversation. Due to the systematic nature of conversation and its structure, the redundancy found in grammar,

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and the various forms of contextualization employed during such 'talk-in-interaction,' participants are often able to work collaboratively to accomplish the various goals of their conversation despite many potential obstacles and barriers—even an aphasia.

For purposes both as professionals interested in social interaction or as clinicians involved in re-establishing effective social interactions despite an individual's aphasia, these observations and explanations suggest that there is potential within the conversational dyad to overcome the neurological impairments and linguistic deficits created by aphasia. However, such common-sense generalizations or folk explanations have limited value in advancing the understanding of how the conversational dyad and the specific efforts of the conversational partners result in the communicative success of persons with aphasia. Detailed investigation of the specific conversational phenomena underlying these folk explanations is needed. Information from these data can then be employed to inform and enrich therapeutic efforts involving patients with aphasia.

In the aphasia literature, there have been preliminary attempts to investigate such matters. A number of studies have focused on aspects of communication between couples (Furbacher and Wertz, 1983; Linebaugh, Pryor and Margulies, 1983; Linebaugh, Margulies and Mackisack-Morin, 1984; Linebaugh, Margulies and Mackisack, 1985; Simmons, Kearns and Potechin, 1987; Doyle, Goda and Spencer, 1995; Oxenham, Sheard and Adams, 1995). These studies report on spouses' knowledge of aphasia, ways spouses use language in structured language tasks, and suggestions for designing treatment programmes. While these studies have been very helpful in focusing on the importance of conversational partners to an individual with aphasia, they have not directed sufficient attention to the actual communicative strategies or interactional patterns that these couples have employed. Further, they have not focused enough on the authentic use of these strategies in conversational situations. Recently, however, a number of researchers have attempted to systematically investigate the conversation of persons with aphasia and their primary communicative partners. These studies have provided preliminary data on various strategies and patterns employed to overcome difficulties due to aphasia (Ferguson, 1992; Goodwin, 1995; Oelschlaeger and Damico, 1996a, b; Simmons-Mackie and Damico, 1996).

The everyday language use focused on by these researchers primarily involves conversation. This is because conversation is both the social situation in which most persons do their talking (McDermott and Tylbor, 1983) and is the paradigm example of naturally occurring speech (Butterworth, 1978). For example, Goodwin (1995) studied conversations between an aphasic man and a number of family members, while Oelschlaeger and Damico (1996b) investigated the conversation of a person with aphasia and his spouse specifically. Additionally, the focus of the investigations by Ferguson (1992) and Oelschlaeger and Damico (1996a) was on conversational events surrounding word finding difficulty. Similar research has been reported on individuals with dementia (Orange, Lubinski and Higginbotham, 1996).

Results of these studies suggest that conversation is best viewed as a collaboration between participants who actively negotiate action and meaning, and these studies have begun to increase ones understanding of everyday language use. The need to continue the investigation of the everyday conversation between spousal partners is stressed by the oft-stated challenge to learn about communicative ability in natural settings (Holland, 1982; Lyon, 1992; Oxenham *et al.*, 1995) and the implications of

this research to the understanding of the communicative process and the development of treatment programmes focusing on the training of 'communicative partners' (Kagan and Gailey, 1993). It seems self-evident that if one is to understand the everyday use of language and how it can be used therapeutically to impact the social lives of persons with aphasia, more information about the interactive communicative process between partners in conversation and the strategies and patterns they use is imperative.

In keeping with the need to more closely investigate the specific strategies and patterns underlying a couple's conversational success—even in the face of an aphasia—the authors have undertaken a long-term investigation of successful conversation between married couples, despite aphasia exhibited by one of the partners. Although still underway, this long-term study has provided some interesting data on the specific strategies employed during conversation. While a complete report of the current research findings is beyond the scope of this article, one frequent and effective collaborative strategy will be discussed—Joint Productions.

Joint productions

When conversations are cyclically reviewed to identify recurring patterns of interaction between an individual with aphasia and his/her partner, a frequently noted conversational sequence occurs when the aphasic individual initiates a turn and the conversational partner participates in some way in the construction of that turn. Such participation in the construction of someone else's turn-at-talk is reported in the literature investigating the conversations of ordinary people (Jefferson, 1973; Sacks, 1992; Schegloff, 1994; Lerner, 1991; Goodwin, 1987, 1995; Ferrara, 1992). Such instances are referred to as 'collaboratives,' 'joint productions and utterance completions' (Sacks, 1992) and 'compound turn construction units' (Lerner, 1991). Because of differences in nomenclature by various authors, this study employs the term 'joint production' to refer to this conversational sequence.

Joint productions, the initiation of a turn by one speaker and the syntactically and semantically coherent extension or completion of that initiation by another speaker, have been frequently observed as an effective collaborative strategy in conversational research in aphasia. Based on currently collected data, both the individual with aphasia and their conversational partner employed this interactional strategy to help overcome difficulties due to linguistic and other communicative deficits. Unlike interruptions that constitute an intrusion of talk occurring quite independently and without regard to the syntactic or semantic output of the initial speaker (Ferrara, 1992), joint productions serve to advance both the flow of the conversation and the content that makes up the interaction. Example 1 provides a demonstration of this important interactional pattern.

Example 1

1 Ed: Yeah. About uh, Brooklyn, Brooklyn Bridge?
2 MG: Uh huh.
3 Ed: That's me. **On the, the** =
4 M: = **other side.**

In this example, Ed (the aphasic) initiates a turn in line 3 (preliminary component) and M (his wife) completes that turn in line 4 (final component). Such

co-construction of a turn-in-progress yielded an impression of an uncanny ability on M's part to know what Ed was going to say. Such occurrences are the basis of many of the clinical anecdotes and folk explanations mentioned earlier in this article. Even the participants do not seem to recognize how such joint productions occur. For example, M spontaneously mentioned this phenomenon during one of the extended conversations (Conversation E): 'Sometimes it amazes me the way I fill in his words for him,' and then later: 'I don't know (how I do it). I just do. I know him.'

Based on work with conversational dyads involving at least one partner with aphasia and the work done in conversational analysis on this phenomenon of joint production, this article will discuss the following aspects of joint productions with this study's clincal population:

- What types of joint productions are effectively employed during spouses' conversations with their aphasic partners?
- What linguistic, paralinguistic and contextual resources are available for signalling when and how specific interactional techniques are used?; and
- What motivations relate to spouse participation and the specific interactional techniques noted?

Method

To investigate joint productions in naturally occurring conversation, descriptive and interpretive methodologies associated with sociolinguistics generally and conversational analysis specifically were employed in this investigation (Atkinson and Heritage, 1984; Milroy, 1987). Conversational analysis is used extensively in the enterprise of understanding the conversations of ordinary persons (Schegloff and Jefferson, 1974; Duranti and Goodwin, 1992; Sacks, 1992) and is recognized as a viable means of ensuring authentic data collection and rigorous and valid data analysis and interpretation (Heritage, 1984; Damico, Simmons-Mackie and Schweitzer, 1995).

Conversational participants

For this study, a married couple was selected from the membership of a stroke support club due to their strong conversational abilities. Such careful pre-selection of participants based on the focus of the study is a common and important consideration in descriptive and interpretative research and ensures that the investigation can focus on the data of interest—various conversational strategies and behaviours that help overcome deficits. The husband, Ed, was 50 years old with a 6-year history of aphasia. His Aphasia Quotient (AQ), derived from the administration of the Western Aphasia Battery (WAB) was 46·6 with a WAB classification of conduction aphasia (Kertesz, 1982). His wife, M, was a normal communicator with no discernable impairments. This couple agreed to participate in the long-term study of natural language use, specifically conversation. At times, the first author (O) and a research assistant (MG) were also involved in conversational interactions with Ed and his wife (M). Biographical information on the conversational participants is presented in Appendix A.

Conversational elicitation

Since the focus of conversational analysis is to study social life *in situ*, videotapes were made by the couple in conversational activities and locations of their choosing. They were expected to record only those types of activities that would occur if the video equipment were absent or if requests for data had not been made. A video-camera was placed in the participant couple's home over a 6-week period of time, and Ed and M were asked to turn it on to record their conversations. There were no predetermined schedules or topics, and videorecording occurred at their discretion. This resulted in five videorecordings of their two-party conversations. On three other occasions, O and MG were present and sat around the kitchen table talking with Ed and M. These instances led to three videorecordings of multiparty conversations. Conversation parameters related to when and where the conversation occurred and identification of conversational participants are presented in table 1.

Data for analysis

Once videotapes were collected, they were orthographically transcribed and segmented in terms of 'turns at talk' for each participant (Schegloff, 1994). Transcription markings are described in Appendix B. Conversational segments of specific interest are presented in bold face throughout this paper with inclusion of transcription markings as necessary for the understanding of the text.

The corpus of data for analysis consisted of the conversations that occurred during each videotaping. Conversational boundaries were defined by the initiation and conclusion of interactions characterized by the turn-taking organization of conversation (Sacks *et al.*, 1974). This resulted in the exclusion of 27 minutes when either Ed or M left the place of videorecording, when M's mother briefly diverted Ed and M's conversation or when M was reading from a newspaper or catalogue. Table 2 displays conversational length and specific features of Ed's and M's turns at talk.

As noted in table 2, the data for analysis consists of 2797 turns at talk for Ed and M. This large corpus of data is important for establishing the authenticity of the data collected and the validity of the analyses conducted. There are several reasons for this. First, as with all conversational analytic studies, a 'method of instances' is employed (Benson and Hughes, 1991; Psathas, 1995). That is, the aim is to focus on specific singular events of conversational activity and attempt to adequately describe them relative to this study's interests. The actual separate and

Table 1. *Conversation, place and participants*

Conversation	Place	Participants
A 8 June 95	Dining room table	Ed, M & MG
B 11 June 95	Outdoor patio	Ed & M
C 15 June 95	Dining room table	Ed, M, O & MG
D 24 June 95	Outdoor patio	Ed & M
E 6 July 95	Dining room table	Ed, M, O & MG
F 15 July 95	Outdoor patio	Ed & M
G 15 July 95	Outdoor patio	Ed & M
H 17 July 95	Outdoor patio	Ed & M

Table 2. *Comparison of turns at talk for Ed and M per conversation*

Conversation	Turns at talk		
	Ed	M	Difference: E to M
A 42 min	211	192	+19
B 28 min	212	213	−1
C 31 min	169	195	−26
D 35 min	186	176	+10
E 44 min	184	336	−152
F 19 min	64	55	+9
G 31 min	122	114	+8
H 36 min	185	183	+2
Total 266 min	1333	1464	−131

singular events are then combined to derive an overall understanding—and potential generalizations—regarding multiple instances. In this case, given the large data set, there were numerous instances of actual joint productions to analyse separately and then combine to reach some understanding of the systematicity of these events. Secondly, this large data set, covering eight different time periods, various participants, several locations, and numerous spontaneously generated topics allowed the creation of a triangulation of effort in the data collection (Sevigny, 1981; Jick, 1983; Damico *et al.*, 1995). That is, by employing different data collection occurrences and locations, the investigators could compare and contrast the different data obtained across the different events over different occasions. This helps ensure that the data are authentic. Then, by comparing and contrasting the variety of data while describing the patterns of interest (joint productions), the authenticity of the interpretation is ensured. In effect, the robustness of findings is assured through repeated observation and analysis of specific conversational interactions.

Additional support for the authenticity of findings is the balance of talk between Ed and M. There is only a difference of 131 total turns at talk out of the 297 turns observed between Ed and M. That is, there was less than a 5% asymmetry between their turns at talk and this was largely accounted for by the difference in one of the three multiparty conversations (Conversation E). Although a balance of talk is not a necessary feature of a conversation (Sacks, 1992), these data do suggest that Ed, even with moderate aphasia, was a fully participating interactive partner in the conversational dyad with over 62% of his turns characterized as multiword turns averaging over six words per turn.

Once the data were collected and transcribed, the conversations were cyclically reviewed to identify recurring patterns of interest (i.e. joint productions) between Ed and M. Applying the previously discussed definition of joint production, these instances were each separately analysed to determine and describe the actual joint productions and the antecedent and subsequent behaviours produced by both participants (i.e. syntactic consistency, verbal and nonverbal features, interactional responses). The frequency of joint productions for each conversation was also determined.

Results

Based on the analysis of the data, there were a total of 87 joint productions by Ed and M in the corpus of 2797 turns at talk. These ranged from a low of five joint

productions in two conversations (F and G) to a high of 21 in Conversation H. The analysis identified three different types of joint productions: word searches, turn completions, and appendor productions. The frequency of occurrence of each type of joint production for each conversation is displayed in table 3.

To determine the reliability of identification of joint productions, the first author counted joint productions occurring in all conversations. Intra-rater reliability was established by the first author recounting joint productions in two conversations, representing approximately 25% of the total data set. One conversation was randomly selected from the two-party conversations and one was randomly selected from the multiparty conversations. Determination of inter-rater reliability involved the identification of joint productions in the two selected conversations by a second rater well versed in interactional analysis. Both intra-rater and inter-rater reliability for joint productions was calculated by dividing the number of agreements by the sum number of agreements and disagreements and multiplying by 100. With this procedure, inter-rater and intra-rater agreements for joint production identification were 88% and 100% respectively. In cases of disagreement, coding was discussed and resolved.

Types of joint productions

Word search joint production

The first type of joint production involved those that were employed in *word searches*. That is, Ed indicated a need for assistance in accessing a word once he had initiated a turn and M complied with his need by providing a word, thereby co-constructing his turn. An illustration of a word search joint production is seen in example 2 taken from Conversation A when Ed was telling MG (a third party) what he did for a living:

Example 2

1 Ed: **Well, I was a-, I'm-, the uhm, how should I say it? (2·1) I'm:::::(1·7), can't**
2 **think of the name of it**
3 M: **Draftsman?**
4 Ed: **Draftsman.**

Consistent with the definition of a joint production is that M's turn at talk in line 3 is semantically and syntactically tied to Ed's talk in progress. In this example, she proffers a word that fits perfectly into his, as yet, incomplete turn, thereby joining him in

Table 3. *Frequency of types of joint productions in conversations*

Conversation	Word search	Turn completion	Appendor	Total
A (6/08)	9	1	2	12
B (6/11)	6	6	1	13
C (6/15)	6	2	2	10
D (6/24)	4	7	3	14
E (7/06)	4	2	1	7
F (7/09)	1	2	2	5
G (7/15)	2	3	0	5
H (7/17)	8	8	5	21
Total:	40	31	16	87

the production of the turn that he initiated. This allows Ed to gain access to the elusive word and then continue with his turn. It is interesting to note that in her word search joint productions, M's contribution was often minimal, but very specific. For example, 79% of the time she only contributed one or two words, often a noun or simple noun phrase (88% of the time). Additionally, in word search sequences, M's candidate word was offered in a guess format 75% of the time. Data relating specific features of M's contribution in Ed's word searches are presented in table 4.

As the format of M's participation was quite stereotypic, so was Ed's interactive response when the word search was resolved. In line 4 of example 2, he repeats her offered word. This repetition strategy was employed often by Ed. In fact, as noted in table 4, repetition of M's word as a response to her joint production effort occurred 55% of the time (22/40) and was related to the accuracy of her offered word. In other instances, he responded by affirming accuracy with the word 'yes' or 'right' (8/40) or continuing the conversation by taking his next turn (4/40). In six instances, he either continued his turn without specific acknowledgement of M's offered word, did not verbally respond or rejected her offered word.

Word searches as a type of joint production are discussed extensively in the research of ordinary persons and is described as the type of collaboration most people think of when talking about joint productions. They are referred to as 'co-participation in a word search' (Goodwin and Goodwin, 1986) and 'helpful utterance completion' by Ferrara (1992).

Turn completion joint production

A second type of joint production involves an active completion of the first person's initiated turn in the absence of a specific word search. Indeed, there may not be any overt indication that assistance is required. This *turn completion* as a joint production is seen in example 3 taken from Conversation E when Ed and M are talking about some audiobook tapes that they want to listen to in the near future.

Example 3

1 Ed: Yeah we got- the- tapes already **but** =
2 M: =**we just don't have the player.**
3 E: Er, this is what this is.

As demonstrated in example 3, M's participation in Ed's turn in progress is more elaborate and results in an action completely different from word search productions. She does not supply a needed word. Indeed, Ed does not even indicate a need for

Table 4. *Description of M's and Ed's participation in word search joint productions*

M's final component		
Length	Syntactic features	Intonation
Mode: 1 word	Noun/phrase: 88% (35)	Question: 75% (30)
Range: 1–9 words	Clause: 12% (5)	Declarative: 25% (10)
	Prep. phrase: 0% (0)	
	Ed's interactional response	
Repeats: 55% (22)	Affirms: 20% (8)	Takes next turn: 10% (4)
No response: 5% (2)	Rejects: 2·5% (1)	Ignores: 7·5% (3)

assistance. Rather, as seen in line 2, M produces a phrase that, when combined with Ed's initiating component, effectively completes his turn. Her completion productions are further differentiated on the basis of length. In contrast to the paucity of word searches over two words in length, 65% of M's 31 turn completion productions were greater than two words in length. Most frequently, M's final component in a turn completion joint production was a clause delivered prosodically as a declarative statement.

Another characteristic feature of M's turn completion production is its timing. Rather stunningly, there is an all but unnoticeable separation between the end of Ed's incomplete utterance and M's completion of it. The rapidity of her co-joining Ed's turn is noted by latching (i.e. the use of equal signs (=) devised by Jefferson (Sacks *et al.*, 1974)) which reflects either no perceptible or minimal hesitation. In the samples collected, M's latching to Ed's turn occurs in over 33% (11/31) of her turn completion productions. In other instances (14/31), her joining Ed's talk was anticipatory; she would overlap his talk. Such an instance is shown in example 4 taken from Conversation D.

Example 4

1 E: Yeah but make safe it's a **u::sed**
2 M: //**used spare tire.**
3 E: //Right.

Here M and Ed are speaking together as they overlap saying the word 'used.' M is clearly in a position to complete Ed's turn—all he has to do is stop talking. The movement of the turn construction from Ed to M is not as clean as in example 3, but the overlap of talk indicates M is ready to 'pick up' Ed's turn. Table 5 summarizes the data described for turn completions.

For Ed's part, there is often an acknowledgment of the turn completion productions by M. These have the effect of indicating his acceptance of M's contribution to the co-construction and they enable him to re-assert his turn. This is evidenced by his repetition of the last word of M's talk 43% of the time, the affirmation of her contribution 13% of the time and his initiation of his next turn 16% of the time. Only occasionally does he reject (3/31), ignore (1/31) or not respond to her completion component.

Although not as overtly recognized, another type of turn completion has been identified. During initial review of the whole corpus of data, a conversational

Table 5. *Description of M's and Ed's participation in turn completion joint productions*

M's final component					
Length		Syntactic features		Intonation	
Mode: 2 words		Noun/phrase:	29% (9)	Question:	16% (5)
Range: 1–14 words		Clause:	61% (19)	Declarative:	84% (26)
		Prep. phrase	10% (3)		
		Ed's interactional response			
Repeats:	42% (13)	Affirms:	13% (4)	Takes next turn:	16% (5)
No response:	13% (4)	Rejects:	10% (3)	Ignores:	3% (1)
				Unintelligible:	3% (1)

sequence was noted when Ed initiates a turn, but neither he nor M completes it directly. Rather, there is an assumption working whereby each participant infers completion and moves to the next turn *based upon that inference.* Consequently, the conversation continues as if an overt completion was produced. Such a circumstance is demonstrated in example 5 from Conversation F.

In this example, Ed and M are talking about whether or not they have enough propane gas left for their outdoor barbecue grill. M has pointed out that if it can be lifted, there's probably not enough gas in the tank. Ed is expressing concern about his ability to make that judgement since he can only lift with one hand due to his right hemiplegia.

Example 5

1 M: Something like that?
2 Ed: Depends. **If you want one ha::nd**
(2·0)
3 M: **Yeah, but you could pick it up if it's light with one hand.**

In this instance, Ed initiates a turn that is incomplete (line 2). In line 3, M interdicts his talk with a turn constructional unit of her own. Neither he nor she overtly completes his turn; however, completion is apparently accomplished covertly as it is clear that M understands the direction of his talk. Evidence of her understanding is seen in line 3 when she affirms his turn and constructs her own semantically coherent and sequentially appropriate next turn. Although not an overt turn completion production, there are striking similarities between this example and others noted. Both have the same initiating turn characteristics and both result in the same action. The difference lies in the 'missing' completion component. Whether this represents a modification of the basic components of a turn completion production idiosyncratic to this couple or is organized along other conversational principles requires further study.

Turn completion productions are not unique to dyads involving individuals with aphasia. They are also described in the conversational analytic literature focusing on ordinary speakers and they function in very similar ways, Ferrara (1992) calls them 'predictable utterance completions' and Sacks (1992) gives similar examples in his lectures on collaborative utterances.

Appendor joint production

The third type of joint production noted in the data involves using phrases or clauses as appendors that extend the information initially produced. That is, Ed initiates a turn component that is (possibly) complete. For her part, M does not contribute to the ongoing construction of Ed's specific turn but, rather, she extends it with a phrase or clause. In this sense, she *appends* additional information to Ed's completed production. All illustration of an appendor as a joint production is found in example 6 from Conversation D. In this instance, Ed and M are discussing the purchase of a 'walkie-talkie' and what features it would need to broadcast over specific distances.

Example 6

1 Ed: Because there's a (4·4) there's a (1·1) 'tenna way up top.
2 M: **Of the- of the RV?** (RV = recreational vehicle)

3 Ed: V. And we'll put it over there and then we can talk.

In this example, Ed initiates and produces a complete turn (line 1) but M extends the clarity of his completed utterance with her appendor, 'Of the of the RV?' (line 2). For his part, Ed acknowledges her contribution with a partial repetition 'V' and continues.

This type of joint production differs in a most distinctive way from the two previously discussed in that Ed's initiating component is possibly complete and could stand on its own. However, M chooses to add additional information for the sake of clarity or to provide additional data that can serve as contextualization. The semantic and syntactic dependence of M's contribution on Ed's prior turn identifies her participation as incomplete and not constituting a turn of her own. Rather, her appendor production adds information to Ed's prior turn.

Of the 16 appendors noted in this investigation, 75% of them were prepositional phrases while the remaining 25% were clauses. Most of the appendors were produced with falling intonation indicative of a declarative; only four prepositional phrases are spoken with rising intonations indicative of a question. Additional data from analysis of appendor productions are summarized in table 6.

The most common interactional response that Ed made to appendors was agreement which occurred 81% of the time when Ed repeated the last word of M's appendor, and affirmed or initiated his next turn. On two occasions, no verbal response was noted and on one occasion, he rejected her added information with the word 'no.'

Appendor clauses and phrases have also been discussed in the literature of ordinary speakers (Sacks, 1992). They are described as tangible evidence of an engaged listener/participant's ability to analyse the utterance of the other participant 'on-line' and have that analysis immediately available to produce a grammatical appendor.

Resources for signalling and accomplishing participation in joint production

Joint productions within an interactional dyad represent excellent examples of conversational collaboration. Both participants in the dyad work in concert to produce these collaborations and then move beyond them to continue the work of conversation. Even in normal speakers the efficiency with which this is accomplished may be surprising; nevertheless, joint productions occur frequently (Sacks, 1992). Given the

Table 6. *Description of M's and Ed's participation in appendor joint productions*

M's final component					
Length		Syntactic features		Intonation	
Mode: 2–3 words		Noun/phrase:	0% (0)	Question:	25% (4)
Range: 2–6 words		Clause:	25% (4)	Declarative:	75% (12)
		Prep. phrase	75% (12)		
Ed's interactional response					
Repeats:	37·5% (6)	Affirms:	25% (4)	Takes next turn:	19% (3)
No response:	12·5% (2)	Rejects:	6% (1)	Ignores:	0% (0)

limitations of Ed's aphasia, the effectiveness and efficiency of the studied joint productions are even more surprising. Although there are a number of ways that the limitations due to aphasia and even the normal complexity of conversation could prevent the successful negotiation of joint productions, this was usually not the case.

Given the limitations of Ed's aphasia and other more 'typical' risks to the conversation, the question arises about the resources employed in the interactions between Ed and M that enabled successful participation in joint productions. In this investigation, there were a number of resources—both verbal and nonverbal—that were available to signal M's participation and to assist in the successful completion of joint productions once they were attempted. The resources consisted of direct signals from Ed's interactions, online grammatical analysis by M, and the couple's shared information states.

Ed's interactive contributions

The primary signalling resources for M's joint productions appeared to come directly from Ed's verbal and nonverbal behaviours during their conversational interactions. Both verbal and visual resources were available to M in Ed's prior talk. These resources involved gaze, various verbalizations, sound stretches, and gesture. Both singularly and in combination, these behaviours exhibited by Ed provided M with the signals that she used to know when to collaborate with Ed to create the joint productions.

One illustration of Ed's contributory resources may be seen in example 7 taken from Conversation A. In this example, Ed is telling MG about how long it took to get to his job site when he was in the military.

Example 7

```
                                    ,,,-m---------holding hand in place on table--,,,,looks down-------
1 Ed:  Yeah. From here to one there, one mile, one (2·0), no (2·1), can't think of
                                    ------------------------x
2      the name of it
3 M:   Hour?
       ,,-m-nods yes,,,mg
4 Ed:  Hour.
```

This is an example of a word search sequence that displays both verbal and nonverbal word search indices as signalling resources for M. In this word search sequence Ed stops talking (i.e. 2 second pauses), attempts self repair via repetition of 'one,' and then actually verbalizes his difficulty (e.g. 'no, I can't think of the name of it'). In his statement of difficulty, Ed defines the point of his word search, and this provides M with both the impetus to collaborate and specific information on what type of joint production is needed.

Visual resources are made available to M in Ed's preliminary turn initiation component in line 1 in this example. Ed diverts his gaze and sustains a hand gesture. As Goodwin and Goodwin (1986) note, gaze diversion, particularly mid-distance gaze, are powerful nonverbal indices of word searches in ordinary speakers. So M is not only able to 'hear' but also able to 'see' that Ed and the conversation as a whole is in trouble. In 100% of word search productions, both verbal and nonverbal word search indices were present.

It should be noted, however, that the simple presence of word search indices cannot be interpreted as causal for M's participation; there were many times in the data analysed when these word search indices were present and M did not participate. As sequences of nonparticipation were not the focus of this study, such occasions are not discussed. However, they do warrant additional study.

In example 8, more direct verbal and nonverbal resources are illustrated. In this example, Ed both visually and verbally invites M to co-construct his turn. Four invitation devices that are present in Ed's talk are shown in the following examples. These devices are: gaze, wh- question, sound stretches and gesture.

In the turn completion production shown in example 8 (Conversation C), Ed uses gaze to solicit M's participation. As he is talking, he turns to directly look at M at the end of line 1.

Example 8

(raises & lowers 3 fingers) (raises and holds hand up)
,,,-m----------shakes head----------,,,,-gaze away--,,,-m-----
1 Ed: Yeah, because-, the::re three:: drawings and-, there-, two
M: **x----------Ed----------,,,looks down,,,--Ed-----(heads nods "yes")----------x**
x------Ed----------x
2 M: Of the other ones. Yeah.
3 Ed: Ones. And that's it.

Evidence of M's understanding of Ed's direct gaze as an invitation is supported by the data that in 22 of M's word searches as joint production and in 16 of her turn completions, Ed turns his head to directly gaze at M. However, his directing gaze did not occur with any appendor productions. It should also be noted that, for gaze to be a meaningful resource, a person must be in a position to take advantage of it. This was the case in M's case. During most of the conversations recorded and analysed, M exhibited continuous gaze toward Ed. This collaborative behaviour on her part ensured that she would notice his signal to participate if he looked to her.

In example 9 from Conversation B, Ed also gazes towards M. But in addition, he solicits her participation using the interactional technique of a question and answer adjacency pair (Sacks, 1992). In this conversation piece, Ed and M are talking about one of Ed's co-workers.

Example 9

1 Ed: Right. (2·0) So right now she's go::t uh, Las Vegas,
2 **but what is the other town?**
3 M: Reno?
4 Ed: No, no. Out south.
5 M: Laughlin?
6 Ed: Laughlin. That's where he lives.

As can be seen in this example, when Ed asks M a question, he uses the question and answer adjacency pair to select her to provide an answer. This is a very direct way of inviting M to participate in the joint production; it was observed 12 times in their conversations. In this example, they engage in a multiple guess sequence but ultimately she provides the word he is asking for and the conversation continues.

In example 10, Ed and M are talking about an upcoming business trip and the authorization he needs for him to go. Here he combines his gaze solicitation with a sound stretch at the end of line 5.

Example 10

1 M: Yeah. Let me find th-, get me the person's name and if you get a
2 phone number, I can call them. If not I can go to the switchboard.
3 Cuz Danny'll probably let you go. The hard
x----m----------,,,--looks away---,,,--m----------x
4 Ed: //No, he's first one,(1·3) 'proval **fro::m::**
5 M: **//from**
6 the guy after, above Danny.
7 Ed: //fro. Yeah but he's way up here.

As Schegloff (1994) notes, sound stretches are 'turn terminal items' that signify a juncture for turn taking by another speaker. Ed's sound stretch provides an opportunity space by identifying the point in his talk where M could join if she chooses to do so. And, indeed, she overlaps his stretched 'from' as she completes his turn.

Finally, M's participation may be recruited through gesture which, during Ed's preliminary component, is often a head nod or hand movement. In the next example, they are continuing their discussion in Conversation B about Ed's co-worker and some aspects of this co-worker's home life.

Example 11

x---,,,-gaze away----------,,,---m----------**nods toward m**-------x
1 Ed: No, I think it's, no, I think (1·2) the mother and the sick na
2 M: //the, the stress of
3 home life.
4 Ed: No uhm (2·4), dad, dad.

Towards the end of line 1, Ed directs his gaze towards M and nods. Here, his head nod is an additional cue for her to join his utterance. Interestingly, she does and completes it in a direction that he did not intend. Nonetheless, based on the resources she had available, she took the risk and joined his talk to create a joint production.

Online grammatical analysis

The second type of resource employed in the creation of M's joint productions involves her ability as a hearer to immediately analyse Ed's initial turn component grammatically. Based on her proficiency and linguistic intuitions as a native speaker, M is able to analyse the syntactic structure of Ed's incomplete utterance instantaneously and then use that analysis to create a grammatically appropriate final completion component. Examples of this resource employed by M are illustrated in example 7, in which she supplies a noun, and in example 8, in which she immediately provides a prepositional phrase. In both of these cases, Ed's grammatical constructions act to define the remaining syntactic features of this production. As M is listening to Ed's talk, she is receiving direct grammatical indication from him that can assist in her analysis and ability to accurately project the course of his turn. The importance of having information particularly about grammatical structure for comprehension and predictability of discourse is demonstrated in the work of Nicholas and Brookshire (1995) in their study of ordinary and neurologically impaired speakers. Lerner (1991) also describes several syntactic formats on which ordinary speakers build joint productions.

Shared information states

A resource frequently identified in the pragmatics literature that influences participation by communicative partners is knowledge about the topic of conversation (Hough and Pierce, 1994). Participants have life experiences that assist them in a conversation generally and in joint production specifically. Two categories of shared information states influencing joint production are evident in the data: world knowledge and shared personal knowledge.

World knowledge, as a resource for joint productions, is evidenced in the word search sequence in example 12. In this example, there is an initial attempt at a word search as a joint production, but there is a problem. M's offered word in the word search production is incorrect. In such instances, the conversation is diverted either to a multiple guess sequence (See Goodwin, 1995; Oelschlaeger and Damico, 1996a for longer discussion of multiple guess sequences) or, in the worst case scenario, the conversation may be abandoned.

In this sequence, a series of offered words are rejected (lines 6, 8, 10). The conversation is 'on hold,' as this word search is attended to by all participants until the search is finally resovled in lines 11-12. Throughout the multiple guess sequence, however, M's use of world knowledge as a resource is evident. Since the participants are talking about Ed's stroke, they contribute to his word search with words selected from a category set—hospital tests or procedures.

Example 12

1 MG: Then they realized, then they put you in the hospital.
2 M: Uh huh.
3 Ed: Yeah but then they did uh (1·2) the uh (1·9), uh-, what do you call it
4 (2·1) the uh
5 M: **MRI?**
6 Ed: No
7 M: **Angioplasty?**
8 Ed: No
9 MG: **EEG?**
10 Ed: No. The irr, no (1·2) tsk (1·25)uh-, srays, what do you call it?
(1·0)
11 M: **An x-ray?**
12 Ed: **Xray**. And he says, 'oh look he's got a tra...
13 MG: //Look here.

In this example, the category set of 'hospital tests or procedures' provides information about the desired word. That world knowledge is a contextual resource for participation is emphasized by the participation of persons other than M in Ed's word search. In line 9, MG offers a candidate word. The fact that others can perform the same task as M supports the claim that it is common, not exceptional, information derived from life experience that influences participation.

Additional evidence for the resource of shared information states relates to instances when participation is influenced by *shared personal experience*. This occurs especially in multiparty conversations when Ed and M are telling MG and O something about their lives. In these instances, MG and O are 'unknowing recipients' and M is a 'knowing recipient' (Goodwin 1987). MG and O have not yet heard the story being told, whereas M knows what Ed is talking about because she was in

some way part of the experience. In this case, her position as a knowing recipient means she has special information that would influence her participation. Such a situation is evidenced in example 13, in which Ed is telling MG about an upcoming trip he and M have planned.

Example 13

1 Ed: No but we did the-, like, like, we were going de
2 M: **//Canyon de Chelly.**
3 Ed: //de Chelly.

As a knowing recipient, M knows where she and Ed plan on going. This shared experience puts her in a unique position to project the content and direction of Ed's turn as she does in line 2 when she states the proper name 'Canyon de Chelly.'

Motivations for joint productions

To completely understand the complexity of joint productions within the investigated 'aphasic dyad,' it is not enough to identify the types of joint productions and the resources that help produce them. One must also attempt to understand some of the potential motivations that drive the desire for such collaborations.

Based on this study's analyses and the research on conversational analysis available in the literature, there appear to be at least four primary motivations for the joint productions noted in this study. These include providing assistance, establishing affiliation, enhancing communicative effectiveness and efficiency, and establishing the perception of communicative competence.

Providing assistance as a motivation

There appear to be two kinds of assistance that motivated M to engage in joint productions during the conversations analysed in this study. First, she appeared to be motivated by a desire to be of assistance to her husband when he experienced communicative difficulty. This motivation is most directly observed in word searches as joint productions. As discussed previously, in word search productions, Ed makes his word search visible to M. He has gotten to a point in his talk where the word he needs next is not available to him. Consequently, his overt display identifies Ed as a person who is in trouble and in need of help. Perceiving Ed's need for assistance based on his interactive resources, M employs her resources to create appropriate assistance. In most cases, she not only assists Ed in overcoming his transitory difficulties, she does so in a way that gives him back his turn and its interactive thrust.

When analysing appendor productions, the assistance motivation is still operative, but it is targeted in a different way. That is, it relates more to the need for assistance on the part of the listener than the speaker. Since Ed is limited in his utterances, he sometimes does not provide sufficient information for his listeners—especially those who do not share personal experiences with him. Consequently, M is often motivated to provide more information for clarification. That is, as M extends Ed's turn, she adds information that 'contextualizes' and clarifies its meaning. Even when M and Ed are alone, she can use appendors to verify her understanding of Ed's talk and to ensure that her next turn will be on track. Whether her clarification is overt as in declarative additions or more covert as in prepositional phrases stated as questions (see example 6), with appendors she is able to make sure she knows what he is talking about.

Affiliation as motivation

A different motivation appears to drive turn completions as joint productions. This is the desire for affiliation. Turn completions are described as 'techniques of affirmation, showing agreement as to what it is that the topic was' (Sacks, 1992, p. 147). In this regard, turn completions are not motivated by the need for help on either the speaker's or listener's part. Rather, turn completions let the participants mutually and simultaneously understand that they are 'in tune' with one another. Such an affiliation has direct bearing on how personal relationships are socially constituted, and it has implications for defining the personal qualities of a 'good' conversational partner.

Additionally, joint productions may provide evidence to third parties or 'outsiders' that there is a special affiliation between the two conversational partners. For the more that these participants can complete each other's utterances—particularly with turn completions—the more likely it is that they have interactive experience and history together. Such commonalities are often the basis of social affiliation, and this fact is typically not lost on the third parties.

Enhancing communicative effectiveness and efficiency

Another social motivation seen in turn completions of this couple relates to the sharing of conversational responsibility to enhance the communicative effectiveness and efficiency of the partner with aphasia. Such a motivation is seen in examination of the speech performance demands of a turn completion. When two people contribute to one turn, the performance requirement for any one speaker is reduced. This is particularly important in Ed's case because his aphasia makes his conversational attempts more problematic when he is 'on his own.' As a result, M has placed more of the conversational burden on herself, thereby reducing both his communicative load and his conversational responsibility. As noted in earlier sections, M most frequently contributed two words to Ed's (as yet incomplete) turn. As the average length of Ed's turns at talk was six words, this is a significant contribution. Turn completions are a way for participants to share out the task—a kind of 'you take half and I'll take half.' From this perspective, M's motivation is constructed once again as 'helping' as M literally talks for Ed. This motivation has also been described in studies by Simmons-Mackie and Damico (1996).

Establishing the perception of communicative competence

Ferrara (1992) suggests another social motivation for turn completions in her study of ordinary persons. While her study explores a speaker's motivation to solicit the participation of a listener in turn construction rather than the motivation of the listener, her findings are complementary to the focus of this study. Ferrera's basic idea is that when speakers invite participation, they position themselves as communicatively competent. That is, the person never has to finish his or her own utterance, but the assumption is made that he or she could do so. In this way, the more global issue of loss of face (Goffman, 1972) with inability to complete a turn is avoided by the speaker. Extrapolating from Ferrara, the social motivation for a listener, especially one that is empathic with the speaker, is to support the speaker as a competent communicator and prevent loss of face. The fact that M completed Ed's turn 31 times, and that she did so whenever he invited her to do so is evidence of this motivation.

Summary

The findings previously discussed fulfill the purpose of this study in the following way:

- The spouse of a person with aphasia is an active participant in conversation. As a listener, M was engaged in syntactically and semantically analysing Ed's talk. As a speaker, she was able to formulate a semantically and syntactically coherent response. Joint productions specifically demonstrated how she was always involved in the processing and projecting of Ed's talk. She had an active role in negotiating the meaning of their talk;
- M's participation in joint productions was a result of identifiable collaborations between her and her aphasic partner, Ed. The analysis of antecedent and consequent linguistic, paralinguistic and contextual features differentiated types of joint participation; and
- Motivations for spouse participation are identifiable. M's participation in different types of joint productions revealed her understanding of both the immediate needs of the conversation and the less immediate social needs.

Discussion

Joint productions are an impressive display of the participation of a spouse in conversation with her aphasic partner. Although Sacks (1992) describes joint productions as quite 'doable' by ordinary speakers, this cannot be assumed in conversations with persons whose language ability is not ordinary. Ed's talk, characteristic of aphasia, is reduced in verbal fluency, slow and effortful, and contains inaccurate or potentially misleading information. In-class word substitution, poor grammatical organization, disorganized propositional content and provision of insufficient information are present. But, *despite all this*, M is able to perform the online analysis that serves as the basis for a joint production.

Although M's participation in Ed's talk is remarkable, it is perhaps even more important to appreciate the interactional achievement of both Ed and M that joint productions display. Joint productions are exquisitely closely coordinated. Both Ed and M carefully monitor the talk in progress and both provide resources to each other to accomplish a joint production. Again, this is done in much the same way as ordinary speakers (Goodwin and Goodwin, 1986). Joint productions validate once again the description of conversation as a collaboration between participants, even when one of the participants has aphasia (Oelschlaeger and Damico, 1996b).

Viewing conversation as collaborative and co-participatory (a socially organized mutually sustained phenomenon) as evidenced by the joint productions in the conversations of this couple has implications for the understanding of communicative ability of persons with aphasia and the way it is diagnostically and therapeutically approached. Most studies of language use have focused on the disability of aphasia (WHO, 1980). The findings of this study support those of others (e.g. Atkinson and Heritage, 1984) in that conversation is best viewed as an *interactive* phenomenon with participants mutually negotiating the direction and meaning of their talk. When this perspective is taken, new insights into the understanding of aphasia and communicative ability are suggested. For example, a common historical approach to viewing the disability of aphasia is the evaluation of communicative efficiency (Porch, 1977; Nicholas and Brookshire, 1993). In these studies, 'efficiency' is a critical

component for communicative success and various procedures are designed to quantify (i.e. 'correct information units', multidimensional scoring) the communicative efficiency of a speaker. However, a different approach to defining and studying communicative efficiency is suggested when conversation is appreciated as a collaborative endeavour. Efficiency in this case is not determined by the contributions of a single speaker. Rather, efficiencies are thought of in terms of all conversational participants. For example, the dominant organizing principle of conversation is turn taking. One person takes a turn and then another person takes a turn. Only when the first speaker has analysed the speech of the second speaker is the understanding of the latter made clear. A simpler way of saying this is to imagine that you say something. You do not know until you have gotten feedback from your conversational partner whether you have been understood. But, with joint productions especially in turn completions—feedback about what the listener is understanding is much more immediate. The conversation proceeds in this sense much more efficiently.

The findings of the study support the call for a paradigm shift necessitated by the challenge of studying a phenomenon as complex as conversation (Damico *et al.*, 1995). Because of the prescriptions of traditional experimental paradigms (e.g. rigorous control and quantification of data) several researchers have shifted their focus of study from conversation to 'connected speech' (Nicholas and Brookshire, 1993). The qualitative methodology used in this study is a viable approach to understanding conversation as a naturally occurring phenomenon. Its relevance is heightened by the emphasis in the aphasia literature to address not only the disability of aphasia but also, the handicap of aphasia. The study of conversation offers an opportunity to learn about the social lives of individuals with aphasia and, as particularly seen in this study, their spouses.

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Appendix A

Conversational participants

(1) Ed: 55 years old, employed engineer
Six years post CVA
Moderate Aphasia (Western Aphasia Battery Aphasia Quotient = 46·6)
Right Hemiparesis

(2) M: Ed's spouse of 31 years
Employed secretary

(3) MG: Speech-Language Pathology Graduate Student
Research Assistant
Newly introduced to Ed and M

(4) O: Adult Female
Primary Investigator
Newly introduced to Ed and M

Appendix B

Talk is transcribed using a simplified version of the Jefferson transcription system (Sacks, Schegloff and Jefferson, 1974).

Transcription of talk

(1) //: the double oblique indicates the point at which a current speaker's talk is overlapped by the talk of another.

(2) =: the equals sign indicates 'latching'—i.e. no interval between the end of a prior and start of the next piece of talk.

(3) (#): a number in parentheses indicates elapsed time in seconds for pauses 1 second or greater. This device is used between turns at talk between speakers,

between two separable parts of a single speaker's talk and between parts of a single speaker's turn.

(4) ? and .: punctuation markers are used for intonation. A question mark indicates rising intonation and a period indicates falling intonation.
(5) :: a colon is used as a sound production marker, indicating that the prior syllable is prolonged.
(6) –: a short dash indicates a 'cut off' of the prior word or sound.
(7) ( ): a single pairs of parentheses indicate that transcribers are not sure about the words contained or that the talk was unintelligible.

Transcription of gaze and gesture

Gaze and gesture transcription is based on a system described by Goodwin and Goodwin (1986).

(1) Gaze of the listener is marked below the turn at talk. A line indicates that the listener is gazing toward the speaker.
(2) Gaze of the speaker is marked above the turn at talk. A line indicates that the speaker is gazing toward the listener.
(3) x: marks the beginning and end of the direction of gaze.
(4) „: indicates a shift of gaze from one direction to another.
(5) Specific gaze direction is described orthographically through indication of the person or place of the direction of gaze (i.e. mid-distance, away, or initial of person).
(6) Gesture of the speaker is described orthographically above the turn at talk.