

A case study of a non-fluent aphasic speaker: grammatical aspects of conversation and language testing data

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This paper explores how an individual with non-fluent aphasia is able to produce grammatical structures in two contrasting language environments: conversation and clinical testing. A conversation analysis (CA) investigation reveals a grammatical phenomenon in the conversation data that is rarely seen in the elicited language, and it is suggested that this phenomenon may represent an attempt to manage the sequential demands of turns at talk. Analysis of the grammar of language produced in response to clinical elicitation tasks reveals that the majority of utterances are constructed using subject-verb-object (SVO) sentence types. It is suggested that the language environments of conversation and task-based assessment provide the clinician with complementary information about a client's grammatical abilities. We present our preliminary thoughts on the implication of this finding for aphasia rehabilitation.

Introduction

The study of aphasia has long acknowledged the complex effect of brain injury on an individual's ability to produce grammatical structures. Almost exclusively, theoretical approaches have based their propositions about aphasic grammatical deficits on analysis of elicited language (Byng & Lesser, 1993). As a consequence, the primary use of language as a means of interaction is not reflected in current theories, although there is evidence which suggests that task-based sentence production does not necessarily mirror the syntax of conversation (Wilkinson, 1995a). It has therefore been difficult to construct therapy programmes which might address the grammatical problems people with aphasia actually face in real life talk, and which might utilise the often unconscious strategies they have evolved to deal with these problems. Without a knowledge of how grammar in conversation works, it has also been difficult to know whether therapy programmes have made any difference to a speaker's real-life real-time talk.

For many years CA investigations have examined the organisation of turns at talk and the use of particular aspects of language as resources for turn management (Sacks, Schegloff & Jefferson, 1974; Schegloff, 1979). The relationship between

syntax and interaction provided an early and promising focus of study (Sacks et al, 1974). Crucial to this research is the concept of grammatical structures not as a product of an abstract system, but as 'communicatively...real events in time.' (Auer, 1996: 59). The evidence suggests that the grammatical structure of the sentence may be understandable, in part, as an adaptation to the environment, i.e. a series of turns at talk in conversation, in which it naturally occurs.

Wilkinson (1995a), in a CA investigation of the language abilities of an individual with aphasia, suggests that the relationship between task-based sentence production and syntax in conversation is not straightforward. Wilkinson's non-fluent aphasic subject demonstrates a greater ability to manipulate sentence structures, such as subject-verb-object constructions, when completing a picture description task than he does in conversation, where turns at talk rarely contain verbs other than in phrases of low semantic content. The discernible mismatch between the subject's elicited and interactional syntax, and its impact on his conversational skills, leads Wilkinson to suggest that it is not sufficient to investigate aphasic grammatical abilities in the constrained environment of the picture description task.

The paper reports findings from a project investigating grammatical phenomena in conversation and language testing data collected from a number of people with aphasia². The paper uses a CA analysis to compare video data of an aphasic woman, Connie³, chatting at home with her friend Jane, with clinical assessment of Connie's grammatical ability. Results outlined here constitute a preliminary analysis of data; a full report of this case is in preparation (Beeke, Wilkinson & Maxim, submitted). Data analysis will firstly focus on Connie's conversation with her friend, Jane, investigating one type of grammatical phenomenon that occurs in Connie's everyday talk: *fronting* of a noun or temporal phrase to the start of a turn at talk. Following this, some characteristics of the grammar of Connie's elicited language will be discussed. The aim is to show some ways in which the grammatical structures visible in Connie's conversation are fundamentally different in nature to the structures she produces when completing elicited language tests, and to this end a comparison of conversation and assessment will be undertaken. We explore the potential implications for aphasia rehabilitation; discussing the benefits of analysing conversation in addition to elicited data, the current emphasis on normative theories of grammar, and the issue of generalisation of therapy to everyday talk.

Case history and data collection method

Case history

Connie, an ex-catering manager, was 39 years old at the time of data collection, four years post-onset of aphasia caused by a left cerebro-vascular accident. Connie has a dense hemiplegia affecting her right arm, and has no useful movement in this limb. She is otherwise fully mobile and lives alone. Connie has a Broca's-type aphasia, accompanied by a moderate articulatory dyspraxia and mild dysarthria. Her spoken output is non-fluent, with evidence of simplified syntax, morphological omissions

and some problems with verbs, as her description of the plot of the film 'Titanic' demonstrates (a series of full stops indicates pausing):

'girl and boy sailing on a ship...at night...the boy second class...girl first class with her boyfriend...girl walks up to the sea and tries to...boy save her...they in love...girl boyfriend is jealous of the scruffy boy...they hit an iceberg...they swimming boy dead...girl remembers long ago'

Her written output also shows evidence of grammatical difficulty. Connie has good functional comprehension skills.

Since the onset of her aphasia, Connie has received regular blocks of individual and group speech and language therapy (SLT). At the time of data collection, she was completing her final block of SLT, at her own request.

Data collection

This paper will investigate two types of data: conversation and elicited language. Connie completed a battery of elicited language assessments with the first author, a qualified SLT, during two one-hour sessions that took place three weeks apart. All testing was videotaped. The assessments were chosen to elicit quantitative and qualitative data on spoken verb retrieval at a single word level, and on grammar at sentence and narrative levels. For the purposes of this investigation, all language elicited by the tests has been transcribed verbatim, using basic CA conventions for recording pauses, in order to facilitate a comparison between assessment and conversation data. See Table 1 for a list of the assessments to be discussed, and, where appropriate, the numerical scores achieved by Connie on these assessments. A brief description of the requirements of each task will be given in the next section of the paper, before the discussion of test findings.

The conversation data were collected during the same period in which language testing was taking place. Connie was trained to operate a compact video camera so

elicited language test/method	authors/reference	score	
Thematic Roles in Production (TRIP)	Whitworth (1996)	42/45	verbs in argument structures:
		15/15	one argument
		17/20	two arguments
		10/10	three arguments
Verb and Sentence Test (VAST) pilot version: subtest 'verbs within a sentence'	Bastiaanse, Edwards & Rispens (2002)	24/40	target verb
		36/40	target verb plus acceptable alternative verb
		04/40	well-formed sentences
Boston Diagnostic Aphasia Examination (BDAE): Cookie Theft picture description	Goodglass & Kaplan (1983)	see appendix 1 for transcript	
The Dinner Party cartoon strip	Adapted from Fletcher & Birt (1983)	n/a	
The Cinderella story telling	Procedure from Saffran, Berndt & Schwartz (1989)	n/a	

Table 1. Assessments completed by Connie, with scores (where appropriate)

that she could make a video of herself chatting to her friend, Jane, at home, without the presence of the researchers. Connie successfully videotaped 20 minutes of conversation during one of Jane's weekly social visits. The conversation was recorded one week before the final testing session took place. The conversation data have been transcribed using common CA conventions (see Atkinson & Heritage, 1984), and 12 minutes of talk have been selected for analysis.

Data analysis

Grammatical phenomena in Connie's conversation: Fronting

Extracts 1 and 2, below, demonstrate a pattern of turn construction where a noun phrase and/or a temporal phrase is fronted to the start of a turn. There are four examples of this phenomenon in Connie's conversation, two of which consist of a single fronted temporal phrase, and two of a fronted noun phrase accompanied by a temporal phrase. The pattern of noun phrase fronting resembles a grammatical construction that linguists have called left dislocation (Ochs, 1979; Gelyuykens, 1992). According to Gelyuykens (1992), in English left-dislocated structures, word order deviates from subject-verb-object as a result of the movement of a noun phrase out of, and to the left of, a proposition phrase, leaving a co-referential pronoun in its place. Extract 1 shows fronting of a single temporal phrase, whilst extract 2 demonstrates the combination of noun and temporal phrase fronting.

In extract 1, Connie can be seen to initiate a new topic with the question 'last week you go out?' (line 001). The temporal adverb phrase 'last week' is fronted to the start of the turn. The proposition 'you go out?' follows a pause of one tenth of a second (signalled by (.) in the transcript). The temporal phrase used here resembles the type of story entry device described by Jefferson (1978) as a temporal locator. Story entry devices serve to mark the beginning of an extended story telling sequence, and as such function to hold the conversational floor (Wilkinson, 1995a; b).

Extract 1. CGJan00#6.001 going out

line	speaker	talk
001	→ Connie	last week (.) you go out?
002	Jane	erm (0.4) just one weekend away
003	Connie	[(oh right) hheh hh [((Jane nods head and smiles))
004		[(1.1) [((Connie smiles at Jane, who is grimacing))
005	Jane	my (3 syllables)
006		[ehheh heh heh heh (0.3) hh] [((silent laughter from Connie))]
007		yeah that's all I bin doin' 'part from (0.2) bit a
008		decorating (0.8) umm (1.0) (yeah)

The verb that Connie produces in the proposition ('go', line 001) gives the impression of being stripped or simplified to a bare verb stem. A contextual analysis reveals that, despite being constructed without the use of conventional interrogative syntax and lacking verb tense morphology, the turn in line 001 is intended to convey a question concerning a past event. By placing the time phrase ('last week') in initial position, Connie can be seen to be signalling tense in a novel way, setting the scene for the expression of an event in the past by fronting a phrase that carries temporal information. The interactional success of this construction is clearly reflected by the listener's response to the turn. Jane demonstrates that she has indeed interpreted Connie's turn as referring to an event in the past, extending the topic further over subsequent lines to talk about the exact details of what she did the previous weekend (lines 007 and 008).

The second example of fronting occurs in extract 2 below, where Connie introduces a new topic of conversation: the cake that she is going to bake for a friend's wedding in the summer (it is now January). Here, the single word expressing time is a month of the year, 'June' (line 009). The next part of the turn is constructed with a noun phrase referent fronted out of the following linked proposition, and thus resembles left dislocation. The noun phrase 'three tier wedding cake' (lines 009 to 010) is positioned to the left of the subsequent linked proposition 'I make it' (line 011). The co-referential pronoun 'it' is produced in place of the fronted noun phrase. The verb that Connie uses is ambiguous with respect to tense, since, in English, it could either be an infinitive or be marked for present tense ('make', line 011).

Extract 2. CGJan00#6.007 three tier wedding cake

line	speaker	talk
007	Jane	yeah that's all I bin doin' 'part from (0.2) bit a
008		decorating (0.8) umm (1.0) (yeah)=
009	→ Connie	=m tuh (0.2) Ju:ly no- Ju:ne um (0.2) three: tier:r
010	→	wedding cake (0.2)
011	→	I: ma:ke it=
012	Jane	=are yuh
013	Connie	yeah
014		(0.3)
015	Jane	brilliant!

Here, as with extract 1, Connie does not use conventional grammatical methods to mark verb tense, yet she succeeds in constructing a turn which indicates to the listener that she is referring to an event that is yet to happen. Jane's demonstration of understanding of this proposition in lines 012 and 015, and the further development of the topic by both participants over successive turns, indicate that the original expression of the event, although unconventional in terms of grammar, is unproblematic in terms of participants' mutual understanding.

It seems that this pattern of fronting is interactionally advantageous in a number of ways. Firstly, fronting reduces the processing demands involved in constructing a turn at talk. Fronted temporal phrases allow Connie to mark tense without manipulating verb morphology. Examples demonstrate that, in three of the four cases of temporal phrase fronting seen in Connie's conversation, she produces a verb that is ambiguous with respect to tense – in English it could either be a present tense verb or an infinitive – in the place of a future or past tense verb. Examples of fronting discussed here show how tense is expressed via the fronted temporal phrase rather than by morphology. Fronted noun phrases permit simplification of a single subject-verb-object structure into two smaller parts: an isolated noun phrase, followed by a structure rendered less complex to process by the substitution of a pronoun for a full noun phrase. As Wilkinson et al. (in press) note, one function of noun phrase fronting may be to increase the chance of producing a relatively unproblematic turn at talk with limited linguistic resources. By using this type of construction, Connie avoids the burden of incorporating a noun phrase into a grammatically well-formed utterance, and thus reduces the likelihood of encountering difficulties with grammar.

A second possible interactional advantage of fronting results from its turn-holding properties. By producing an isolated element at the start of the turn, it is possible for Connie to project that there is more of her turn to come, thus reducing the likelihood of Jane taking the conversational floor before Connie is ready to relinquish it. A fronted element such as a noun or temporal phrase signals the incompleteness of the turn to the listener on several levels. At the level of meaning, the fronted element has pragmatic projectability (Ford et al., 1996) in that the listener has access to an initial piece of information, but not to the nature of the person's comment or stance on this information. In this way, fronting can be likened to the process of telling a story or joke, where it is the punchline, which comes at the end of the telling, that allows the listener to understand the full import of the story or joke (Jefferson, 1978). At the level of sentence structure, the fronted phrase has syntactic projectability (Ford et al., 1996). Thus, the co-participant can detect that there is more to come via the absence of a grammatically complete utterance.

This preliminary analysis of one grammatical phenomena in Connie's conversation has revealed that at least one aspect of grammar – verb tense – can appear somewhat unconventional, though its function is preserved. At this point then, it is interesting to note that Connie also produces turns at talk in which verb tense is marked in the conventional way. These turns tend to be constructed using SVO-type sentence structures, and most are examples of ellipsis, since they contain at least one pronoun as a substitute for a full-form noun phrase that is directly recoverable from the prior context of the conversation, as extract 3 demonstrates:

Extract 3. CGJan00#6.356 pressure cooker

line	speaker	talk
356	→ Jane	you [ain' got (a) pressure cooker
357	Connie	[(yeh)
358		(0.8)
359	Connie	n [o no
360	Jane	[(nah
361		(1.8)
362	→ Connie	m- (0.2) mum has one
363		[(1.1) [(<i>Jane nods</i>)
364	Jane	(d'you eh-) have you ever used one
365	Connie	n(h)o

Wilkinson *et al* (in press) suggest that aphasic speakers are able to skilfully compensate for their limited linguistic resources by using proforms. They discuss how, for two individuals, the use of proforms aids production of turns that are free from aphasic errors, and thus can progress towards a point of possible completion without any misunderstanding or need for repair. It is interesting to note then, that turns where Connie produces proforms have accurate verb tense morphology and tend to demonstrate smooth progressivity towards the end of the turn. As the following section on elicited grammar shows, Connie does not always find it so easy to construct SVO-type structures, and in the testing environment such sentences often exhibit lengthy and frequent pausing during production.

Characteristics of Connie's elicited grammar

In the section that follows, a summary of Connie's performance on TRIP and one subtest of the VAST will be presented, followed by analysis of the narrative data. Assessment details and Connie's scores on those yielding quantitative results, are shown in table 1. Discussion will highlight a particularly noticeable qualitative pattern across all testing data: the repeated use of SVO-type constructions as a response strategy.

TRIP (Whitworth, 1996) requires an aphasic person to describe line drawings, and materials are designed to elicit firstly, single nouns, and then sets of sentences where the nouns occur in argument structures, with pictures designed to elicit either one, two or three verb arguments (for example, 'the girl is crying', 'the man is chasing the car', 'the children are giving the hat to the man'). The test has two sections, and each contains 17 single nouns, followed by 7 or 8 one argument, 10 two argument and 5 three argument structures. The person with aphasia is required first to listen to the clinician producing each noun and sentence in section one (items progress from single nouns to one, two and then three argument structures), whilst looking at the appropriate picture. Once this modelling is complete, the person with aphasia is asked

to describe the pictures in section one without help. Thus elicitation is a form of delayed repetition. This process is then repeated for section two.

The VAST is an English language version of the Dutch assessment, WEZT (Bastiaanse et al., 2000). The subtest used here – verbs within a sentence – is taken from a pilot version issued by the authors prior to publication (Bastiaanse et al., 2002). It requires the person with aphasia to describe line drawings by producing a sentence which best describes the action depicted. The subtest contains 40 items and materials have been selected to allow for analysis of verb transitivity and frequency, and sentence grammaticality.

Performance on TRIP and the VAST

The singular most striking feature of Connie's performance on TRIP and the VAST is the complex level of language that is demonstrated. This section aims to show that Connie is able to successfully construct sentences of the SV, SVO, SVA, SVOO and SVOA type, with use of grammatical morphology characterised by fluctuating omission of: indefinite and definite articles; auxiliary verb 'be' in present progressive tense; third person singular present tense marker.

On TRIP, Connie scores 42/45 (93% correct) for production of verbs in argument structures. Connie's ability to construct SVOA and SVOO structures is demonstrated by the following responses:

item		response
TRIP P1-S3-35	the boy's showing the apple to the horse	'boy showing apple to the horse'
TRIP P2-S3-37	the girl's giving the book to the boy	'girl is giving the boy the book'

Performance on the subtest of the VAST that elicits verbs within a sentence reveals a score of 24/40 items where the verb is correctly retrieved (60%). The majority of Connie's errors (12/16) consist of acceptable descriptions that are scored as incorrect because of the failure to produce the target verb. Inclusion of these items brings the score for verb production in a sentence context to 36/40 or 90%, which compares favourably to the results of TRIP. Additionally, responses are scored in terms of grammatical well-formedness. In Connie's data, only four of the 40 responses (10%) are grammatically well-formed sentences. Thirty three of the 36 ill-formed responses are attempts at sentences that show omission of: articles; third person singular present tense markers; auxiliary in present progressive tense verbs; as the following examples show:

item		response
VAST item 3(ii)	ice-skating	'man is ice-skating'
VAST item 23(ii)	blow-drying	'she blow-dry her hair'
VAST item 37(ii)	tying	'the girl tying her shoes'

To summarise, assessment using TRIP shows Connie is able to produce verbs in sentences with 93% accuracy. She shows little difficulty with the construction of SVOA or SVOO structures. Her performance on the VAST seems to indicate greater difficulty, with a score of only 60% correct, but this reaches 90% when descriptions containing an appropriate alternative verb are included. Thus, it can be concluded that Connie's performance demonstrates only a mild difficulty with elicited sentence construction (error frequency ranges from 7% to 10% of the total responses).

The area in which she shows greatest impairment is production of grammatically well-formed sentences. Data from the VAST reveal that only 10% of responses are grammatically well-formed. Informal analysis of the responses to TRIP reveals a figure of 20% for well-formedness. Qualitative analysis of Connie's ungrammatical sentences reveals omission of: articles; third person singular present tense markers; auxiliary in present progressive tense. For responses to both TRIP and the VAST, complete omission of the verb is rare (7 examples in 124 responses, or 6%).

Connie's performance raises interesting issues about the nature of these tasks. Analysis of data from TRIP and the VAST reveals a particularly noticeable pattern of response; the repeated use of an SVO or SVA construction. Data from the VAST and TRIP show that, for the majority of intransitive items, Connie is able to retrieve the correct one-argument target verb (71% and 87% of the time respectively), but that approximately half of the time she produces it within a two-argument structure. Thus, she regularly adds an *optional* second argument; one that is not required to be expressed by the verb in any formal grammatical sense, as these examples from the VAST show:

item	response
VAST item 12(i) skipping	'she (0.7) s- (2.8) skippin' a rope'
VAST item 16(i) diving	'she (0.8) diving (0.2) on the (1.2) sea'

Connie is not always successful in her attempts to add an optional second argument, and such difficulties often cause her to have to reformulate her sentence, as this example from TRIP demonstrates:

TRIP item P1-S1-20 the woman's crying	'the girl- is cry- (0.5) over (0.6) uh weep?'
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The fact that most of the second arguments produced by Connie in these sentences are optional suggests that the repeated use of SVO and SVA structures is a strategy that Connie favours for use in testing situations, rather than a symptom of grammatical impairment.

In conclusion, the clinical profile that emerges from the sentence elicitation tests reveals that Connie is able to retrieve a range of verbs in order to construct SV, SVO, SVA, SVOO and SVOA sentences. Although these sentences are adequate at a structural level, there is evidence of difficulty with the production of grammatical morphology concerned with tense and with articles. Connie favours the use of either an SVO or an SVA

construction to give structure to her responses to these tasks, even when the target verb is intransitive, and therefore only requires her to produce an SV construction.

Performance on the Cookie Theft picture, Dinner Party cartoon strip and the Cinderella story

This section will focus on narrative data elicited by the Cookie Theft picture description, the Dinner Party cartoon strip description and the Cinderella story telling. A full transcript of the Cookie Theft picture description can be found in appendix 1. The aim is to show that the characteristic SVO/SVA pattern that dominates the syntax of TRIP and the VAST is also visible in the syntax elicited when a test demands the production of a series of linked utterances.

Data from the Cookie Theft picture description reveal grammatical structures that closely resemble those produced by Connie as part of the single sentence elicitation assessments. In a pattern similar to that seen in the data from the VAST and TRIP, she produces structurally adequate SVO and SVOA sentences that contain evidence of some difficulty with articles and tense. The following utterances from the picture description demonstrate this:

line number	subject	verb	object	adverbial
09	boy	is stealing	the biscuits	
13	he	give	one	to her
17	she	doesn't know		about it

The Dinner Party cartoon strip also demonstrates features similar to the data from TRIP and the VAST. Structures produced are of the SVO/A type, and some show difficulties with article omission and tense marking, as does TRIP, VAST and Cookie Theft data. However, others are grammatically well-formed sentences, and one contains an irregular past tense verb, 'ate', in the utterance 'the cat ate the meal' (line 51):

line number	subject	verb	object	adverbial
03	man	telephone	husband	
07	wife	cooking	the meal	
12	they	prepare	the meal	nicely
16	other couple	dress up		
51	the cat	ate	the meal	

The production of structurally adequate sentential utterances also extends to the Cinderella story telling, where again we see the same patterns:

line number	subject	verb	object	adverbial
05	king	go		to the ball
14	Cinderella	lost	her shoe	
68	they	(wi)ll live		happy ever after

Thus, so far, the assessment data demonstrate that Connie's ability to produce structurally adequate SVO, SVA and SVOA utterances is common to all types of testing, and that its frequency of occurrence is high. However, the narrative data also reveal some structures that differ from this three or four element sentential form. There are three clear examples of fronting in the Cinderella narrative, which are similar to fronting seen in the conversation data. These examples may occur as a result of the nature of the task; telling a story from memory. Temporal phrases of the 'once-upon-a-time' type commonly feature in conversational story telling (Jefferson, 1978). There is evidence to support this idea, in that one of the fronted temporal phrases Connie produces is a highly stereotypical story entry device: 'long long time 'go'. The other two temporal elements that Connie deploys in the Cinderella story telling convey information about the time of occurrence of a specific event: 'eleven o'clock', and 'midnight'. In this way, they resemble the types of temporal elements fronted in conversation: 'last week' (extract 1) and 'June' (extract 2). There are no examples of temporal fronting in the Cookie Theft or the Dinner Party narratives. No examples of noun phrase fronting can be found in any of the narratives. There is some subject and verb omission in all three narratives, and occasionally single word utterances are produced. It is notable that these characteristics are rarely seen in the sentences elicited by TRIP and the VAST.

However, by far the most striking feature of the narratives is the amount and length of pausing that occurs during utterance construction. This is evident throughout all sentence types in all narratives, and is particularly marked during construction of grammatically well-formed utterances. According to Jefferson (1989), the normal maximum length of an intra-turn pause in conversation is one second. Pauses in lines 15 and 16 of extract 4, and line 51 of extract 5, shown in seconds in single brackets, demonstrate how much time is needed to construct grammatically well-formed sentences:

Extract 4 CGJan00#6.cinderella.14

line	speaker	talk
14	→ Connie	(0.2) m (0.7) tuh Ci:nde:re:lɪa:
15	→	[(1.6) mm L((looks away from researcher))
16	→	[(7.7) L((looks back at researcher; smiles, looks away again))
17	→	lost [her shoe (0.8) L((waves her hand around))
18	Researcher	mhm

Extract 5 CGJan00#6.dinnerparty.51

line	speaker	talk
51	→ Connie	[(1.2) the cat (0.5) ate the (1.9) meal L((looks at picture))
52		(.) hhhehhhh [hhh
53	Researcher	Lyeah- (0.2) an' the cat
54		had the- the (.) proper fish=
55	Connie	=yeh=
56	Researcher	=yeah

Yet again, Connie's performance raises interesting issues about the nature of the elicitation tasks. It seems that the nature of the task allows Connie to take a considerable amount of time when constructing her utterances. A narrative, by definition, affords the speaker a lengthy chunk of the conversational floor without fear of interruption from others. Thus, Connie is completing the Cookie Theft and Dinner Party picture description and the Cinderella story telling in an environment where the normal rules of turn-taking have been temporarily suspended. She does not need to compete for her turn, and can therefore afford to take as much time as is necessary to construct utterances, knowing that she will not lose her turn through interruption. In this way, the narrative language environment is very different to that of conversation, which is highly turn-competitive. Excessive intra-turn pausing in conversation is strongly dispreferred because it is likely to result in loss of the conversational floor, and in interactions with an aphasic person, it is viewed as an overt sign of linguistic non-competence (Wilkinson, 1995b). Connie's SVO-type grammatical structures in conversation do not exhibit the excessive pausing seen in narrative structures of a similar type. These data seem to show that the language production process is directly affected by the demands of the language environment.

Discussion

Data analysis shows that Connie produces many SVO-type sentential constructions when completing elicited language tests, but that she is doing different things with grammar in conversation. The majority of utterances elicited by both the single sentence and narrative tests are constructed of a subject and a verb, plus one or two other elements. Some of these sentential structures indicate that Connie has problems with articles and tense, but others are grammatically well-formed. It is interesting to note that sometimes these structures take a significant amount of time to be completed, as is indicated by the length and frequency of pauses in the data. Pauses are longest and most frequent during the construction of three and four element structures in the narrative data. In direct contrast, findings show that only a minority of utte-

rances in conversation is constructed of SVO-type structures. Those utterances which do conform to the SVO-type do not demonstrate the lengthy and frequent pausing that is apparent during the production of comparable structures elicited by narrative tasks. As was discussed in the previous section, excessive and lengthy intra-turn pausing in conversation is dispreferred by speakers because of the increased likelihood of losing the turn. We have seen from Connie's narrative data that construction of standard SVO- and SVA-type structures takes considerable time. Although not a problem in the narrative language environment of suspended turn-taking, her slow production will most certainly make her vulnerable to interruption by a peer in conversation. Therefore, it may not be a coincidence that most SVO- and SVA-type structures in conversation are elliptical, as the substitution of pronouns for full-form noun phrases reduces the processing demands involved in utterance production, thus allowing her to take a structurally complete turn at talk without the occurrence of excessive pausing that might result in the loss of the conversational floor.

Analysis of Connie's turns at talk in conversation reveals a grammatical phenomenon that is rare in her elicited language: fronting of a temporal or noun phrase, or a combination of the two, to the start of a turn. Analysis has shown how this phenomenon may be interactionally advantageous. Firstly, it reduces the processing demands involved in constructing a turn at talk, since a fronted temporal phrase provides an alternative method of marking tense, and a fronted noun phrase permits the substitution of a pronoun in the utterance that is to follow, thus removing the need to integrate a full noun phrase and a proposition into one utterance. Secondly, fronting acts as a turn-holding device by projecting that there is more of the turn to come, since the fronted element is both pragmatically and syntactically incomplete. Jane's response to Connie's use of fronting indicates that, although the resulting grammar can be unconventional in terms of method of tense marking, rarely is there any breakdown in mutual understanding. Indeed, further data analysis to be reported elsewhere (Beeke et al, submitted) reveals an example where Connie's use of an SVO-type structure results in the need to repair trouble related to Jane's interpretation of the timing of an event, because of the lack of unambiguous tense markers in the absence of any temporal information. By contrast, in situations where a fronted temporal phrase occurs, repair that is focused on tense is never observed.

These preliminary findings suggest that the fronting seen in Connie's conversation may constitute a real-life real-time interactional adaptation to aphasia, since it allows her to take a relatively unproblematic turn at talk despite difficulties with tense. In some ways, this concept of adaptation is similar to that put forward by Kolk and Heeschen, who hypothesise that some symptoms of aphasia may reflect adaptations made by the individual (Kolk & Heeschen, 1990). In their writings, however, this adaptation has been posited predominantly as being a (neuro)psychological process, adopted by the speaker since it has the advantage of making the language processing system 'less overloaded' (Kolk & Heeschen, 1990). More recently, however, more interactional aspects of adaptation have begun to be explored (Heeschen & Schegloff, 1999).

Clinical implications

A comparison of some grammatical characteristics of Connie's conversation and language testing data have revealed that many utterances elicited by clinical testing are SVO, SVA, SVOA and SVOO structures, whilst in conversation, other, grammatical patterns are seen. Some preliminary thoughts concerning implications of this finding for the assessment and treatment of aphasia will now be discussed. Firstly, it suggests that the routine assessment of the grammar of conversation is just as important as clinical testing of elicited grammar. The data clearly demonstrate that findings from single sentence, narrative and conversation samples are complementary in nature. It can be seen that omission of any one of these language sets from the analysis would result in an incomplete picture of Connie's ability to manipulate grammatical structures. For example, an intervention programme based purely on the findings of elicited language testing may focus on increasing Connie's use of tense and agreement markers, since it is grammatical well-formedness that emerges as her greatest problem. However, conversation data reveal that tense is often conveyed by a fronted temporal phrase rather than by verb morphology. It follows that, even if intervention succeeds within the clinical setting, skills may fail to generalise to real-time real-life grammar precisely because tense is not often treated as problematic by Connie and Jane; it is often conveyed in a way that is independent of the need for tense markers. In this situation, information about how Connie uses grammar in conversation provides a useful comparison to the results of elicited language testing, and opens up the possibility of planning intervention that targets real-life problems of a grammatical nature. Data show that we cannot assume aspects of grammar that are problematic in elicited language will necessarily be problematic for the participants in conversation. Similarly, problems that occur in real-life talk may not be picked up at all if the clinician relies only on elicitation tasks. There is growing evidence that intervention focused directly on aspects of conversation can be beneficial (Lock, Wilkinson & Bryan, 2001). The preliminary findings reported in this paper suggest that the analysis of ways in which speakers with aphasia are adapting within conversation may allow the interactive functions of specific language patterns such as grammar to become the focus of intervention.

Findings also highlight how current approaches to aphasic grammar, most of which are based solely on elicited language, are heavily biased in terms of formal theories of grammar. The fields of aphasiology and linguistics have at their heart a standardised grammar that is built around the concept of the sentence and its constituents, and the characteristics of spontaneous speech are often viewed as the result of the basic grammar undergoing stylistic modification. The belief in the centrality of this sentential grammar underlies the design of current assessments of aphasic language. Tests are either constructed to elicit only SVO-type structures, or, in the case of narrative analysis, the data are segmented into such utterances, and the results of the analysis are used to judge the level of impairment with reference to a sentence-based grammar. However, CA studies of syntax-for-conversation (Schegloff, 1979;

Schegloff, 1996) have demonstrated that this structural linguistic approach is unable to capture fully the grammatical phenomena present in everyday conversation. Individuals engaging in real-time real-life talk use grammar as a tool for accomplishing interaction, and as such its form is influenced by the environment in which it occurs, that of turns at talk (Auer, 1996). The only way to find out how interaction affects grammar is to analyse conversation. As a consequence of adopting a standardised theory of grammar, intervention is often focused on the production of grammatical sentences of the SVO-type. Data analysed here seem to suggest that for people with aphasia normal real-life grammar involves much more than producing well-formed sentences, as indeed it does for non-impaired individuals. If the aphasia therapist wishes to take into account real-life language use, then it may be useful to complement the assessment of elicited grammar with analysis of conversation data, viewing aspects of grammar both in a formal and a functional context.

Acknowledgements

This research was funded by the United Kingdom Economic and Social Research Council, grant R000222754. We would like to thank Connie and Jane for their enthusiastic participation in data collection.

Nederlandse samenvatting

In dit artikel wordt nagegaan hoe een cliënt met niet-vloeiende afasie grammaticale structuren kan produceren in twee onderscheiden taalsituaties: in een gesprek en tijdens een testafname in de kliniek. Onderzoek met behulp van conversatie-analyse brengt een grammaticaal fenomeen in de gesprekken aan het licht dat in de uitgelokte taal zelden wordt gezien. Volgens ons kan dit fenomeen geïnterpreteerd worden als een poging om tegemoet te komen aan de eisen die beurtnamen stelt in de opbouw van het gesprek. Een grammaticale analyse van de taal die werd geproduceerd bij klinische uitlokkingstaken toonde aan dat de meeste uitingen een 'onderwerp-werkwoord-lijdend voorwerp'-structuur hebben. De suggestie wordt gedaan dat de twee taalsituaties – gesprek en doelgerichte uitlokking – de klinisch onderzoeker complementaire informatie geven over de grammaticale vaardigheden van een cliënt. Tenslotte doen wij enige suggesties over de betekenis van onze bevindingen voor afasietherapie.

Notes

- 1 Traditional clausal syntactic elements have been characterised throughout this paper using the following terms: subject (S), verb (V), object (O) and adverbial (A) (see Crystal et al., 1989).

- 2 Economic and Social Research Council project R000222754: An investigation of aphasic syntax-for-conversation (Wilkinson et al., 2001).
- 3 For reasons of confidentiality, all names have been changed.

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