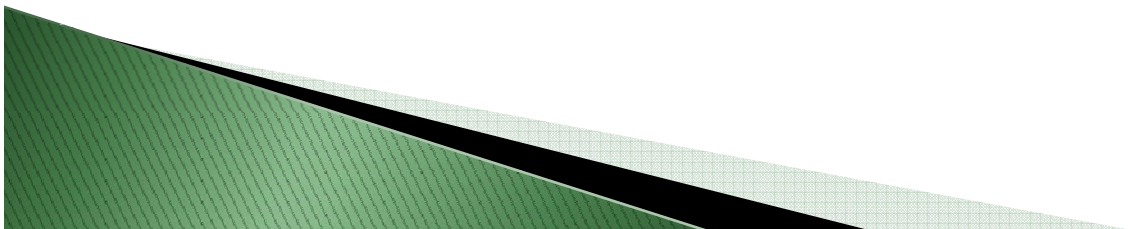# Formulaicity and fillers in Alzheimer's talk

Boyd Davis
Margaret Maclagan
IPrA 2007 Pauses & Fillers

Goal: Impact of pauses in AlzTalk

- Identify how formulaic phrases are associated with short (less than 2 seconds) and long (2+ second) pauses, and
- Identify how they are collocated with fillers, interjections, discourse markers and similar contextualization cues.

Changes in pauses over time

- Our data shows changes in function for the kinds of pauses in a story, and in its subsequent retelling:
  - from signaling difficulty in finding words
  - to signaling problems in finding key components in the thread of the story (Davis and Maclagan 2006).
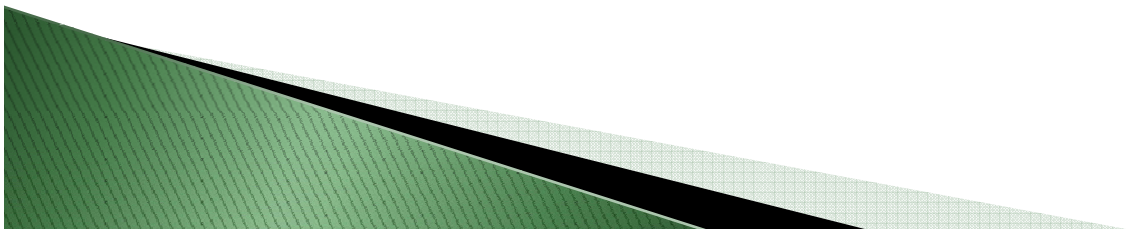
Focus: pauses/collocations

Identify when and how the production of pauses and collocated sequences are keyed

- to functions within a conversation, or
- to location in the interaction, or
- to functions in narration, particularly in replacing or augmenting a defective narrative component.
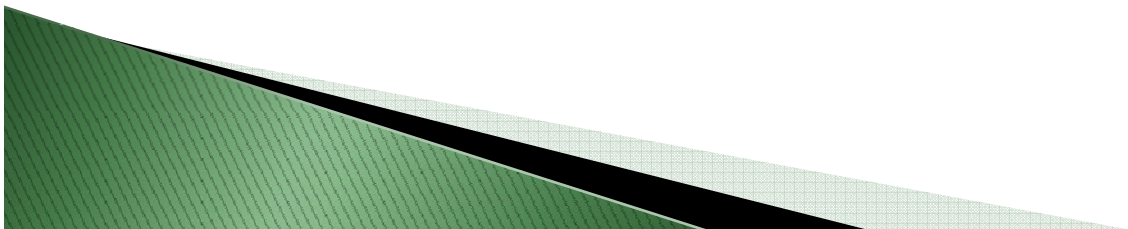
Formulaic utterances

Wray & Perkins (2000) list over 40 terms describing formulaic utterances. They define a formulaic utterance as

- "a sequence, continuous or discontinuous, of words or other meaning elements, which is, or appears to be, prefabricated:
- that is, stored and retrieved whole from memory at the time of use, rather than being subject to generation or analysis by the language grammar"
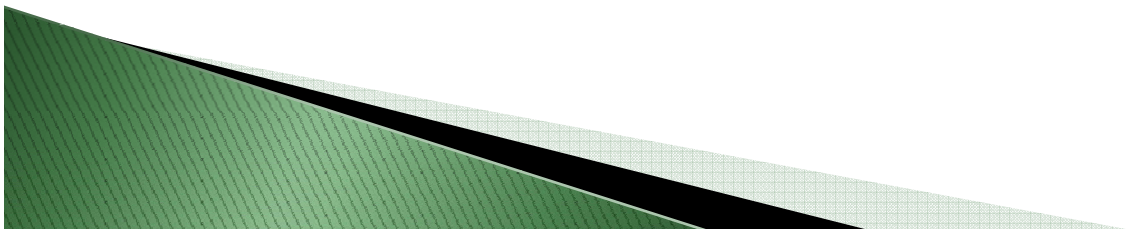
Total data set, impaired speakers

- AlzTalk: NC
  - 8 speakers, bi-monthly chats, 2+ yrs, 1999-2005 professional researcher partners, ave. 10 min ea.
  - 24 speakers, monthly chats, 1-2 yrs, 2000-2005 professional researcher partners, ave. 10 min ea.
  - 40 speakers, 2 – 8 chats per yr, 2004-present, student conversation partners, ave. 15 min ea.
- AlzTalk: NZ
  - 6 speakers, chats each 4 months, 2+ yrs, 2004-07
  - professional researcher partner, ave. 10 min ea.

- password-protected web portal being developed

Subset for current report

- All are women, Caucasian, born 1918-24, and from predominantly rural origins
- 12 ten-minute clips, or ca. 2 hours

  - NZ: 2 impaired (Jane Roberts, Margaret Bell) 2 conversations each, across 2 years
  - NZ: 2 unimpaired (Margaret Bell, MD, MH) – from ONZE
  - NC: 2 impaired (Glory Mason, Eileen Copeland) 2 conversations each, across 2 years
  - NC: 2 unimpaired (Barbara Goodroe, Daisy Dunlap)—from NewSouthVoices, http://newsouthvoices.uncc.edu
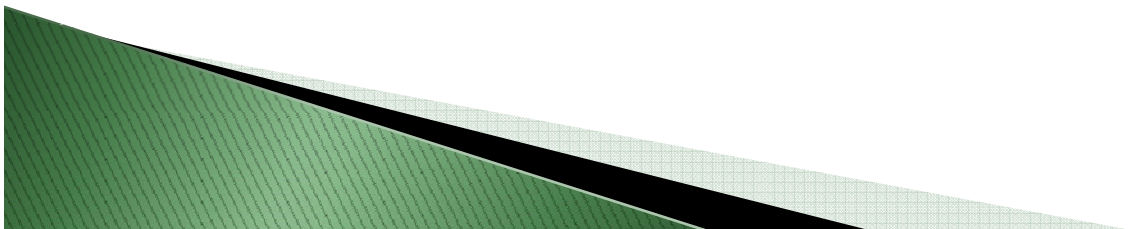
Why investigate AD use of pauses, fillers?

Their study in AD speech
- may help understand role of formulaic speech
- may help identify areas of pragmatic compensation, and thereby clarify classification of pragmatically-driven components in conversational narrative
- may contribute to proposed models of disfluency processing
- may help understand expectations for pauses, wait-time, false starts – the 'normal' tolerance for 'error' or 'deviance,' and the socialization of (culturally-reinforced) perceptions about aging and cognition
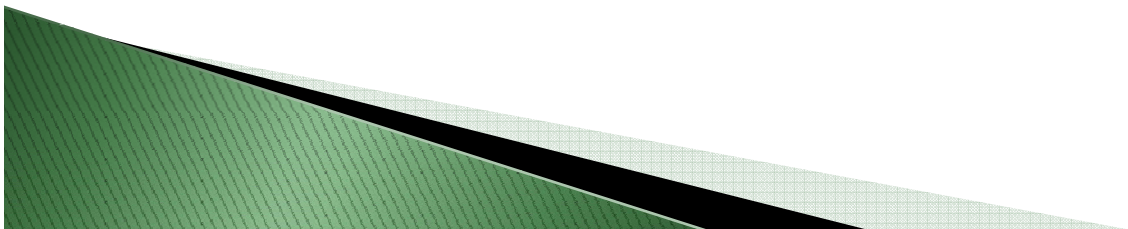
On behalf of AD speakers

- Looking at hesitation markers, pragmatic markers (Norrick 2007), and fillers may help us better understand how "individuals with Alzheimer's disease and their interlocutors make sense within emergent interaction… how conversational partners display their communicative intentions, draw communicative inferences, signal social relations, and co-construct the ongoing activity" Hamilton (2005: 240)
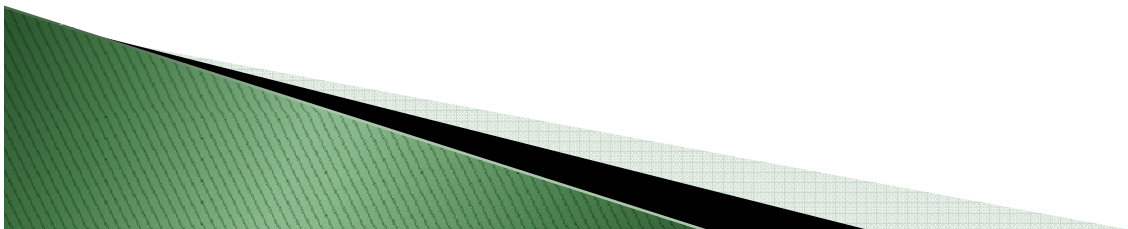
Which perspective shall we take?

- <u>Clinical Testing</u> can ground aggregate commentary, but it may miss key issues of production and interaction on any given day
- <u>Conversational Analysis</u> offers a great deal to analyst, can be translational, but doctor or nurse unlikely to conduct it
- <u>Interactional Sociolinguistics</u>: We are **working at discourse-level** as informed by interactional and variationist sociolinguistics (see, for example, Yaeger-Dror 2003, whose study of intonation and prosody shows that 'social concerns predominate over …cognitive needs')
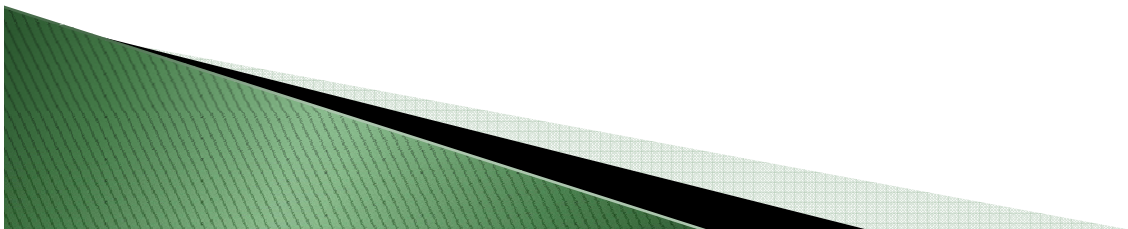
Pausing

- Does not occur only at syntactic boundaries (Pinker 2005: Hayes et al,2005 review 'stalling' and 'advancing')
- Frequently precedes but does not follow function-content word unit (Gee & Grosjean 1983)
- Ferreira (1993) identifies two kinds of pauses:
  - "timing based pauses" based on preceding material – due to prosody
 - "planning based pauses" due to upcoming material – due to syntax
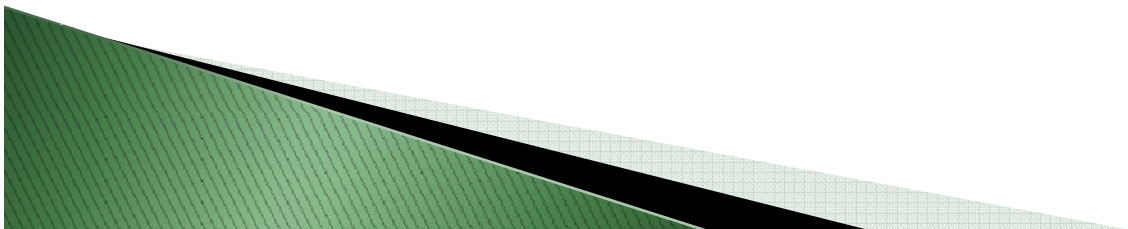
Some issues about pauses

- They can buy valuable time for the speaker
- They may not always be used just for planning or word-finding
- They may be more than disfluencies

We assert they are used by AD speakers **for social interaction as part of a repertoire of compensatory language behaviors**
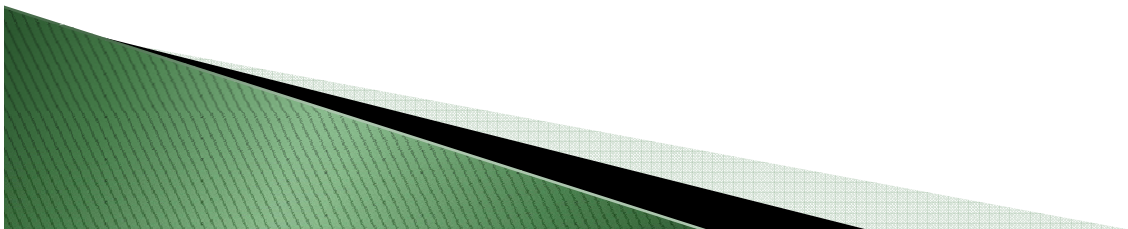
Problems with identifying fillers and placeholders with AD speakers

▸ With Alzheimer's speakers, fillers may act both as placeholders and hesitation markers – and it can be hard to tell which is which. In addition,

◦ Heterogeneity of impairments, preserved abilities
◦ Can have other ailments besides AD
◦ Placeholders for AD speakers can include formulaic sequences or fragments of such
◦ Interjections are hard to classify because timing and cognitive rhythms can be ambiguous
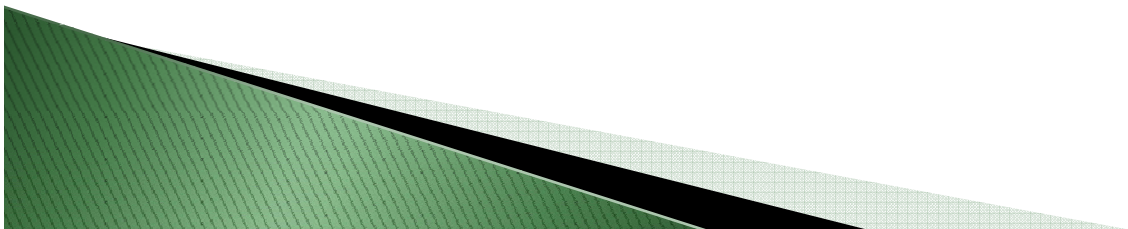
pause length

- When and under what conditions will filler/hesitation markers be inserted? And what is the perception of appropriate or troublesome pause length by unimpaired speakers?
  - Appropriacy of length from interlocutor's viewpoint is tied to language, culture, and situation – that includes cognitive status
  - In our data, we make distinctions of under 1sec for micro-pauses, less than 2 sec for typical pausing by older speaker and over 2 seconds for slowdown.
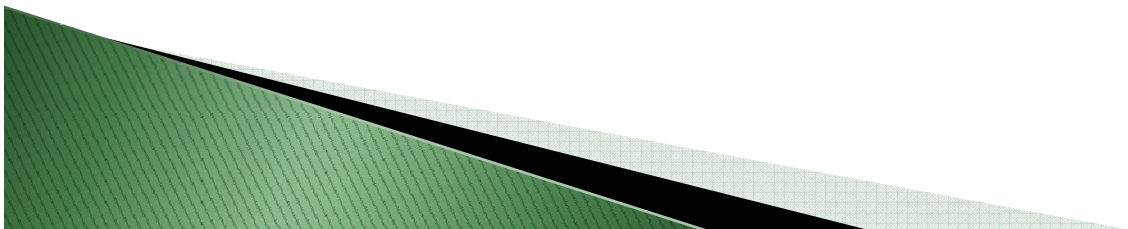
What AD-pauses 'plan'

- next word (may also include 'false start')
- phrase – typically in 'read' speech
- turn management
- topic management
- **narrative component**: Oliviera (2002; 2000) reviews evidence for pauses and hesitations surrounding the production of narratives, and claims that pause duration is not keyed to content but to a cognitive planning cycle.   We think it would make sense, then, that AD speakers whose disease is advancing might move to such a cycle, and that presumably- unimpaired speakers can be said to have habituated specific narrative production patterns. What will be interesting will be to see what features of narrative production remain, and to what extent they may be associated with pauses and fillers.

Unimpaired speaker: example

Table 3: Pragmatic particles and hesitation markers used by MD

Particle/hesitation	n	Meanings
Um	4	+ long pause – can't remember
	20	+ short pause – marshalling thoughts
		– explanation
		no pause – marshalling thoughts
Er/ ah er	6	Correction
Oh	8	Suddenly remembering *(interjectional)*
	3	Unsure *(hesitation)*
	2	Definite *(boundary marker; pragmatic particle)*
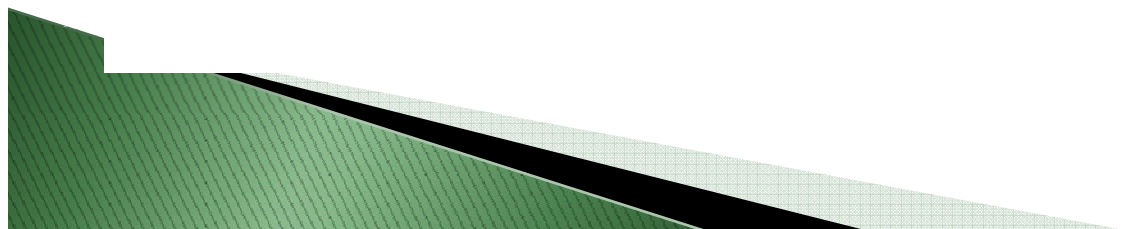
Unimpaired: pause functions

Table 4: Use of pauses in MD's interview

Short pause (less than 2 seconds)		Long pause (more than 2 seconds)	
Meaning	Percentage use	Meaning	Percentage use
Adding extra info	47%	Unsure of details	45%
Correction	16%	Adding extra info	22%
Remembering	13%	Parenthesis	20%
Explanation	10%	Explanation	4%
Word finding	8%	Word finding	4%
Other	7%	Other	6%
Total number	195	Total number	51
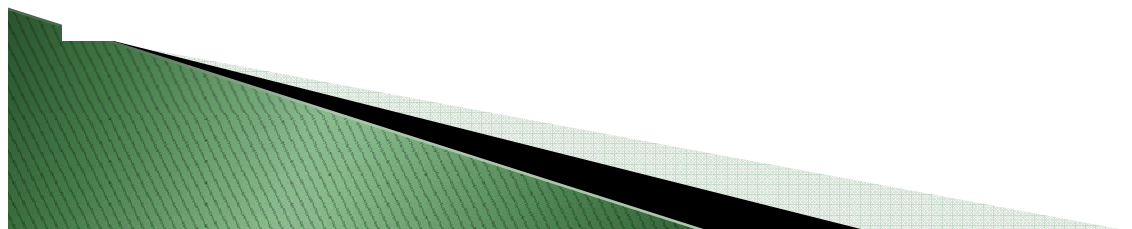
Unimpaired: MH's habituated micropause as narrative strategy

- but they used to come to me for holidays .@_ and ah _.@_ Nicholas was here _.@_ for um .@_ ah _.@ no Richard was here for_ah__ ah _f Guy Fawkes Day [. . . .]

- .@_ and I said do you want a lemonade bottle? and he looked at me and I said come on and we went down on the back bank on the creek bank and the trees weren't so big then _.@_ and_ah__.@ I said now .@__ ah__.@_ I showed him how to put _.@ the_ah__lemonade bottle down an' the the rocket in the bottle an' let it off and ooh_he thought this was wonderful _.@
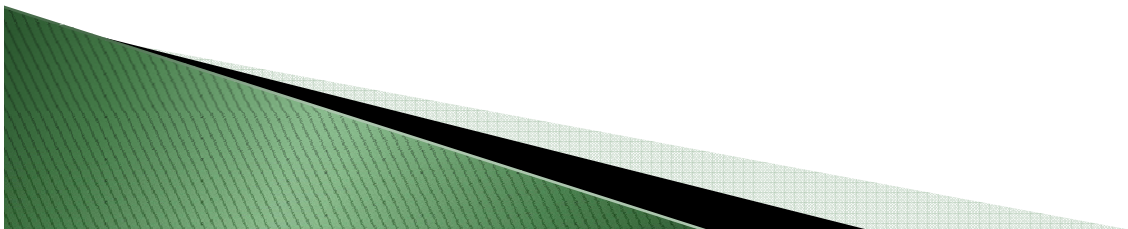
Excerpt, micropause/pause balance, for MH, unimpaired

Table X: Balance achieved across micropause, conventional short pause and interjection

Interviewer's Topic	Wds	Micro-pause	1 & 2 sec. Pause	HM um/er	HM ah/oh	D M	Ratio M/W
1 Guy Fawkes fireworks	725	83	2	3	38	8+	1 to 8.5
2 domestic routine/Mum	155	17	0	0	8	4	1 to 9.1
3 raised correctly/tidy	100	11	0	1	2	0	1 to 9.1
4 raised correctly/teeth	88	11	0	1	2	2	1 to 8
5 teeth (>extraction1)	260	27	0	0	8	2+	1 to 9.6
6 pain – interjection	20	4	0	0	1	1	1 to 5
7 dentures (>extraction2)	432	42	1	1	10	1	1 to 10.3
8 helpful if sick?/Mum	207	21	0	4	5	5+	1 to 9.8
9 operation (>Depression)	662	64	3	4	7	7	1 to 10.3
10 painful class divisions	145	21	0	0	4	2	1 to 6.9
11 deference (>Dad)	300	33	1	0	5	3	1 to 9.1
12 neighbors	422	43	1	3	13	4	1 to 9.8
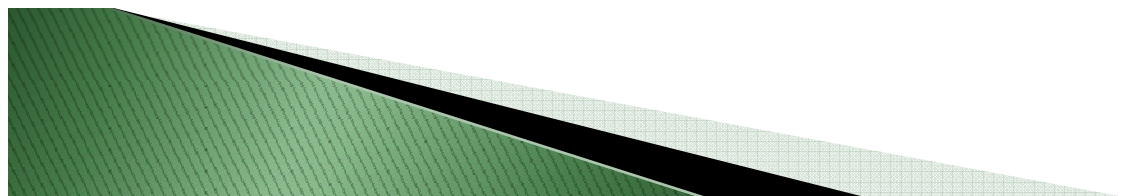
Arrangement by micropauses: note narrative components in MH

Question 11: Were you expected to be deferential to them?

ohh
oh yes
yes
oh yes they demanded that
now
there was one man up
lived 'bout five miles up from Dunsandel
Mr Wesatenra?
and he had horses and that
and he never called
the ordinary men y'know the working men
they always called them by their surnames
but my father
went up there during the war
    [longer pause, equivalent to ordinary long pause of more than 1, less than 2 seconds]
and his sons had all gone to the war he had a big family they'd all gone to the war and Dad went
up
and helped him put his hay in
and he always called him Jack
but anyone else they were called by their surnames

Jane, early AD, offers a story

Turn 8 JR

New story	yes - and **ah** we would see the ship	Abstract
Repair/Elaboration	**.** or the little boat, the launch **.**	
	come in from our balcony of our **two story house**	
same new story	– and	
Story search	**.** the boys would **watch out** and sometimes they'd be **down the beach** **watching out** and they'd **come rushing in** and say Mum **they're coming round the corner** **they're coming round the corner** so Mother would **get out a dish** from the from the b kitchen and some money and **away they would go** to buy us fish for < oh > for **lunch or dinner** or < yes > something that night	Complication Complication Complication
word finding	**fresh fish** **straight off the** **.** off *the little boat* < wow > yes I remember that gr **with great**	Evaluation

Prompted retelling, a year later

JR Turn 6

| new topic	MM : <u>you were at school here during the polio epidemic weren't you?</u> JR : yes **ah** we stayed at Sumner	Abstract <u>MM provides new topic information</u>
JR turn7		
story search	MM : at Sumner did you? JR : yes because one thought it was . **ahh** better to sleep in *the fresh air* coming *straight off the sea*	Orientation
JR turn 16		
New story/word find/ circumlocut	JR : well it was just near the **ah** where the boat comes in <yes yip>	Orientation
story search	then . I can remember the boys used to - **watch out for** when the fishing boats came in <yeah>	Complication
	they must have known what day they came in I don't know how they used to spot it but they were to tell mother	Orientation/accou nt
word finding - circumlocution	they would **come rushing in** and say the **boat's just round the heads** <yes> so mother would **pack up a a bowl** of **ah** a bowl to put the fish in <yes> to buy it down at when it stopped down the <yes> other end	Complication Complication Complication

Jane's story: year 1

Short pauses typically signal word-finding, -substitution or -repair, or elaborative, formulaic phrases.

Long pauses introduce new topics or new information in a fairly well-developed story co-constructed with her partner's go-ahead signals, but without her partner's giving her major content as prime or probe.

Her short pauses suggest timing issues and her long ones suggest planning issues

Pausing pattern suggests her elaborative formulaic phases act as (non-compositional) word-units
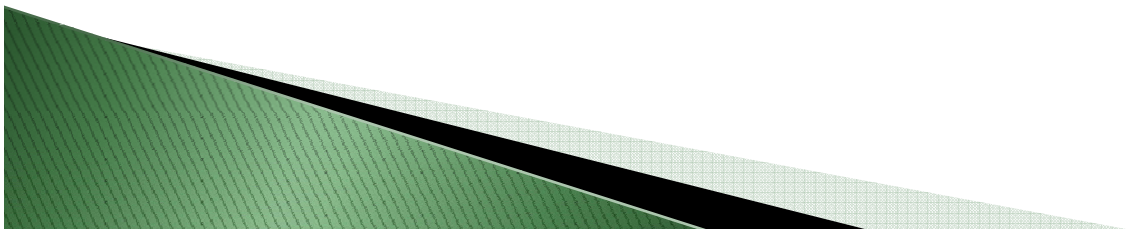
Same story, year 2

- While Jane speaks nearly the same number of words, her pauses have begun to pattern differently in both quantity and function.
  - Short pauses now signal new topics as well as occasional word-finding issues
  - Long pauses most often signal reflective evaluation or search for component of narrative/account and
  - She includes a greater number of SBU to signal that she cannot remember something (Norrick 2005).
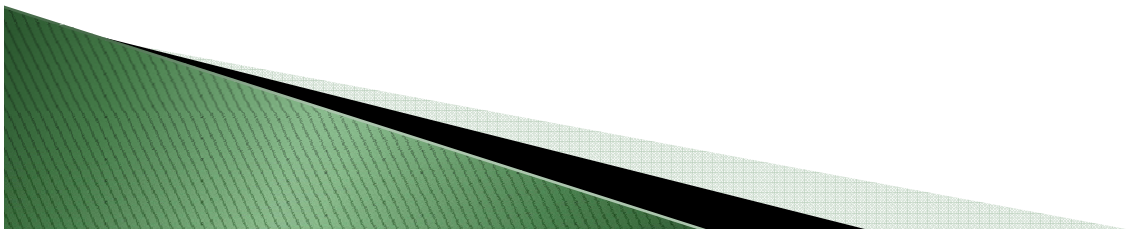
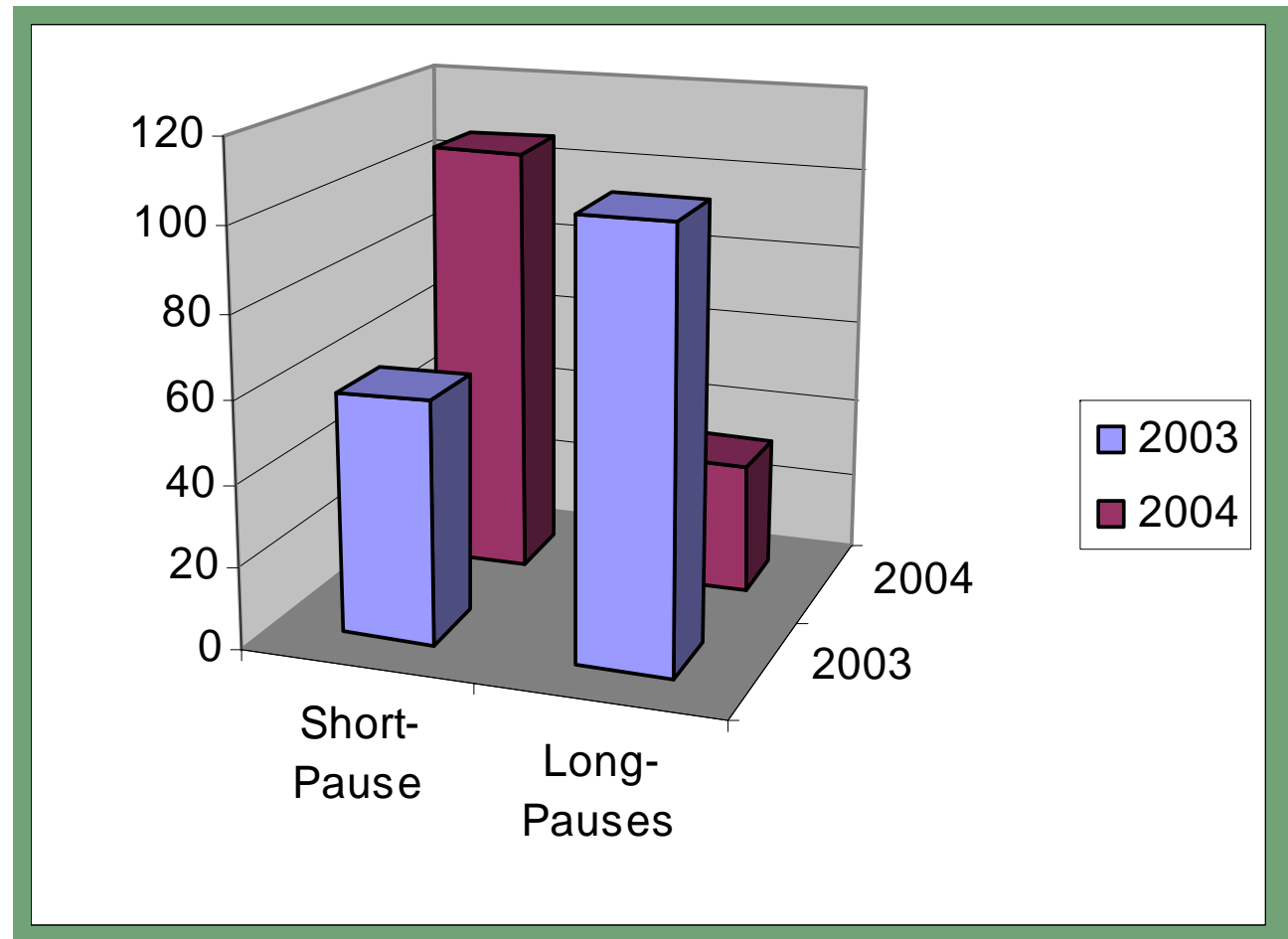# highlighted pause: 1.112 s
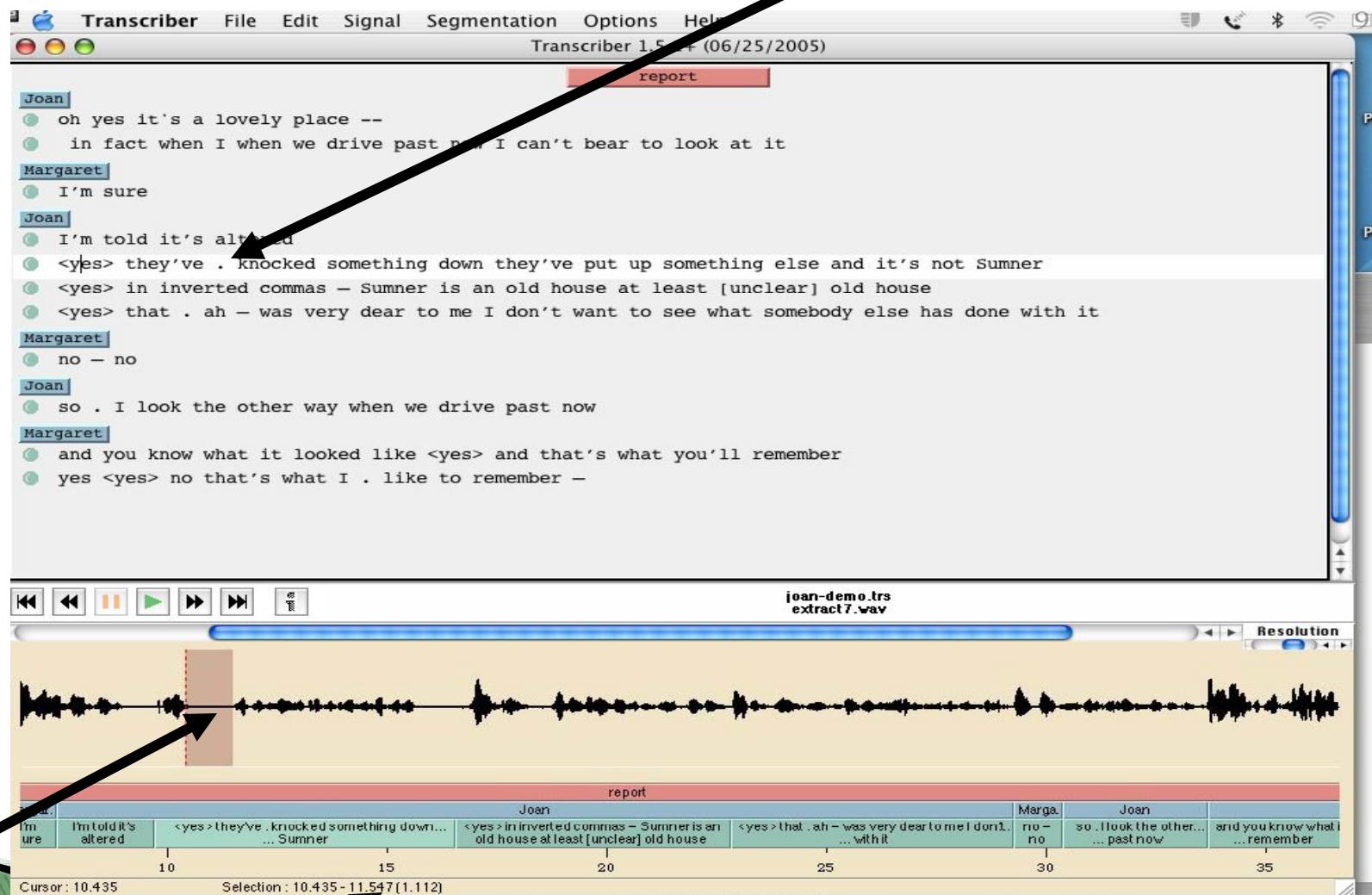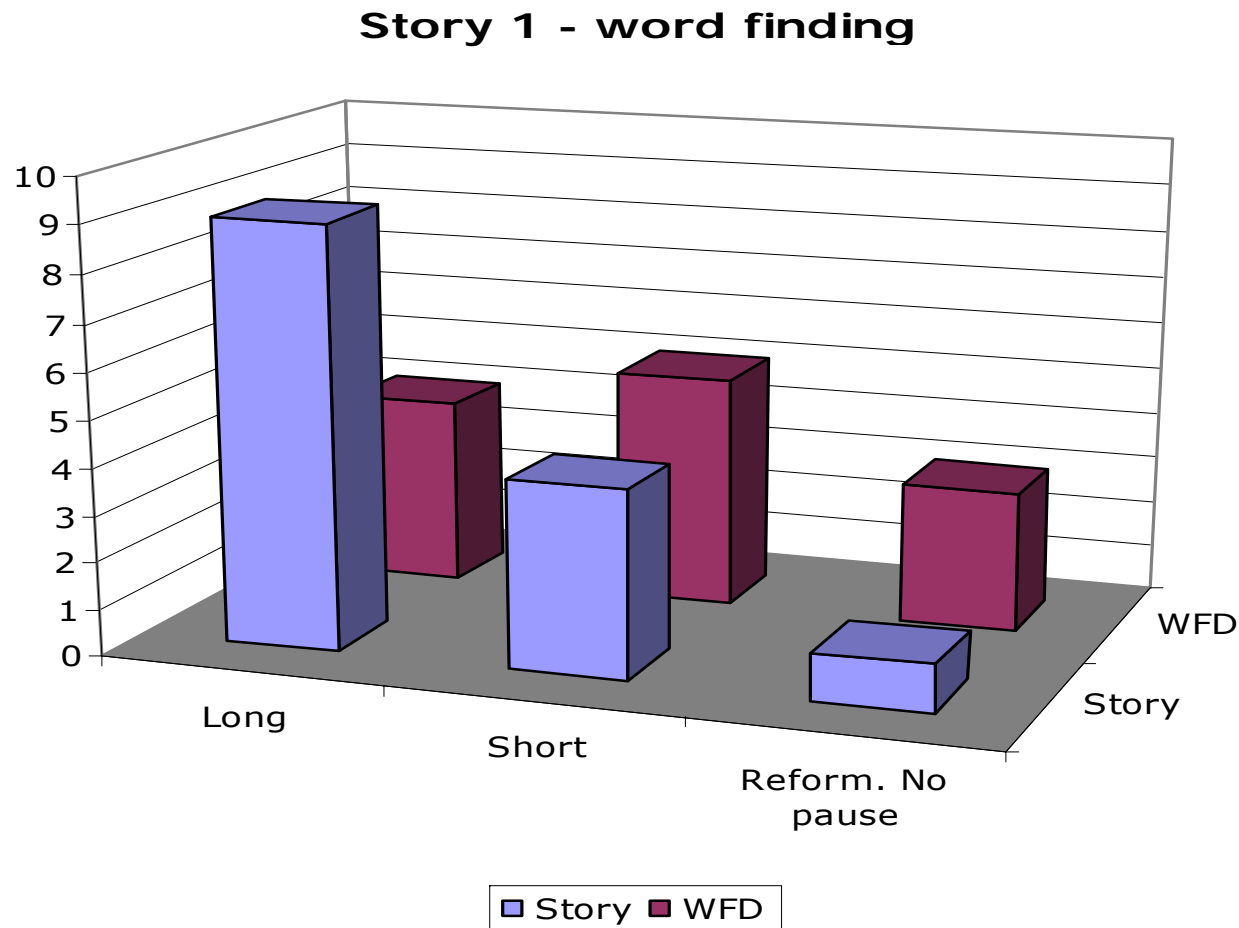
PRAAT: 'they've ■ knocked'
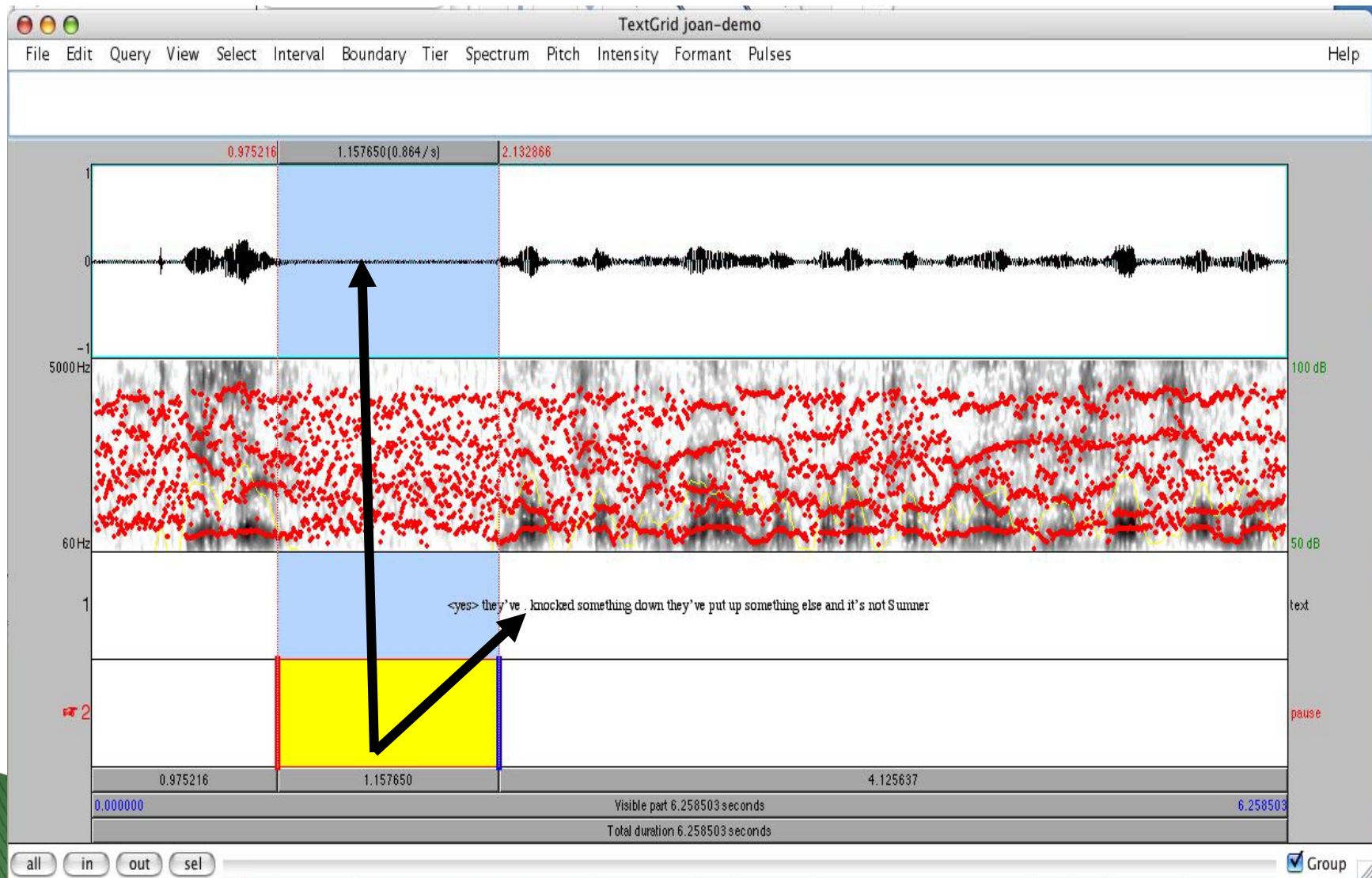
Pauses, planning and timing

In moving from early to moderate dementia, pauses shift function from word-finding to story-finding: **timing gives way to planning at story-level**
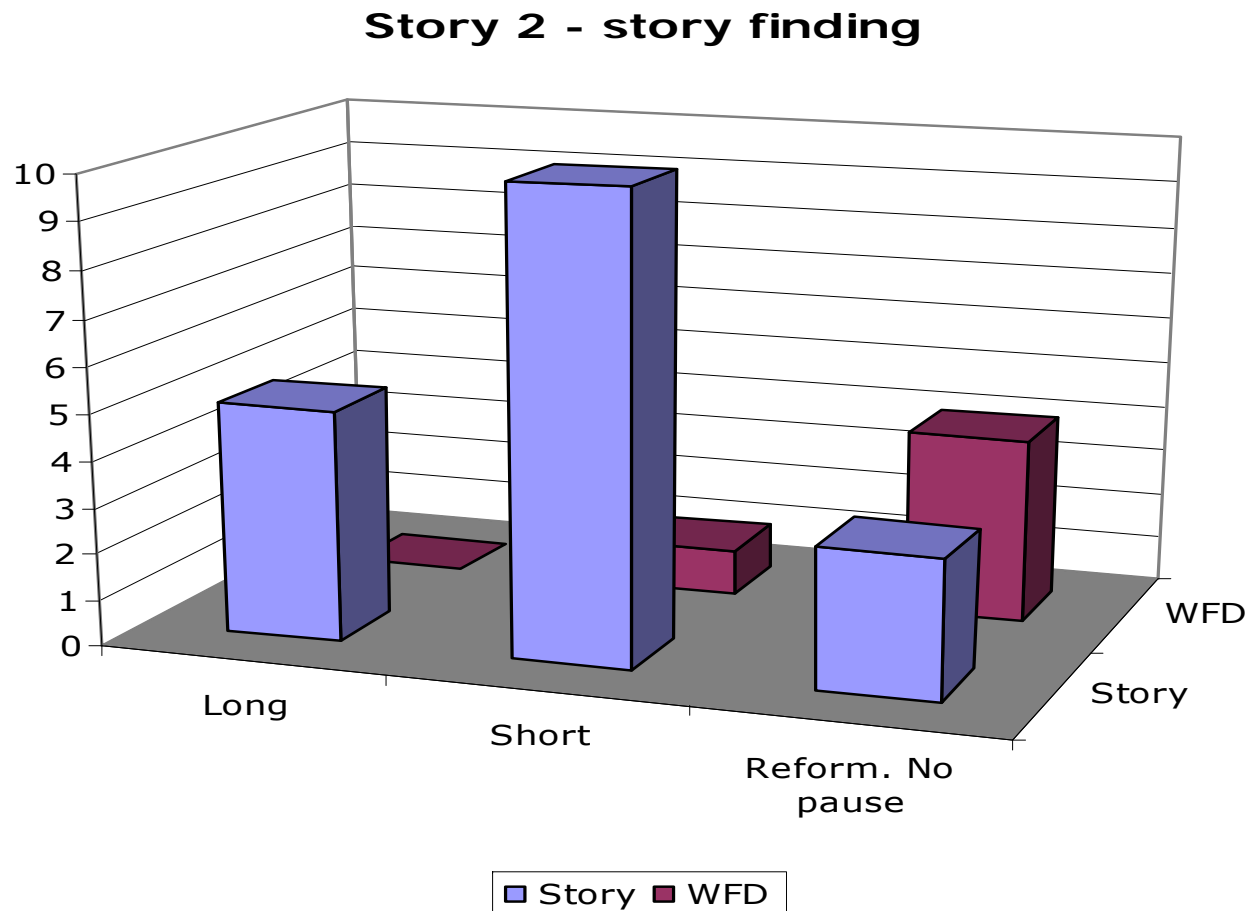

Total words show slight decrease
5231 (2003) 5065 (2004)

# Pauses, Yr 1: timing and planning for word, story, reformulation

Story 1 - word finding

# Pauses, Yr 2: planning for word, story, reformulation

Story 2 - story finding

Data on handout: Margaret & Jane

- MB: 1994 (unimpaired) and 2004 (AD)
-
- MB [unimpaired] Polio story 1994
- JH   and I was interested recently to hear that although you'd had polio as a baby they didn't know until some years later
- MB no **um** _. **ah** Auntie Abby which _. who was a child who you know belonged to the foster parents ah _. had been sick and mother and I had gone a few days to stay with her probably someone like Malcolm was head cook and bottle washer while we were away _. because there was no-one to look after her _. and so we went and stayed and
- JH   how old were you at this stage?
- MB oh quite little I would think under five _. and **um** _. somehow or other Mother must have rung up the doctor and he arrived _. in his car and he'd brought his
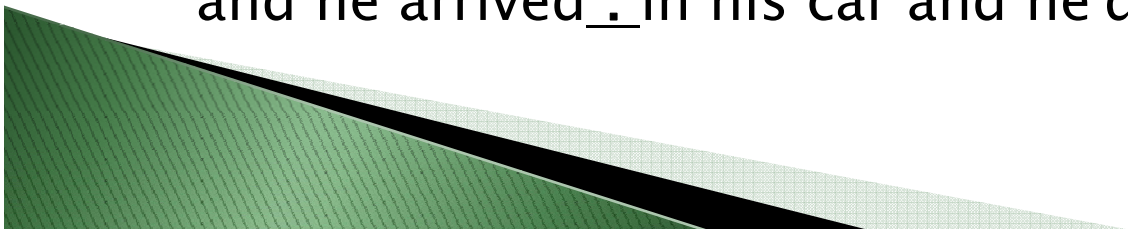
Margaret, impaired

- **Polio story 16 April 2004**
  JH: yeah . did you read Margaret that Mum had to go to hospital when she was little?
- **MM**: I did . that must have been – that was wouldn't have been at all an adventure it would have been horrible
- **MB**: yeah
- **MM**: what had happened?
- **MB**: polio
- **MM**: polio?
- **MB**: yeah
- **MM**: wow – and . what was what was affected?
- **MB**: oh polio – oh I should think all those regions [pointing to her lower leg]
- **MM**: so all of your leg . yeah
- **MB**: yeah mostly
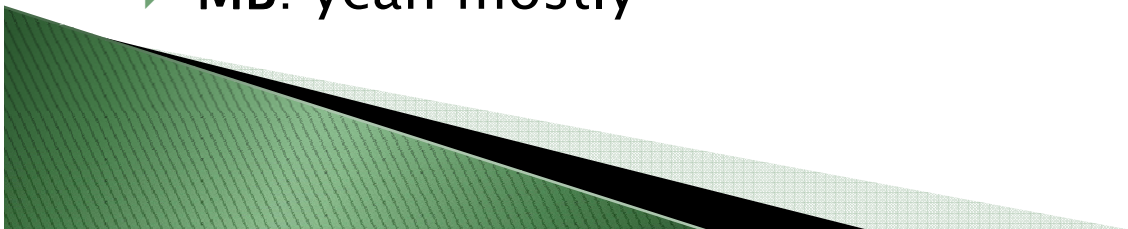
Compensation by the AD speaker

- Pauses, fillers, and placeholders act as signals of 'compensation at work' for expectations that are retained and habituated
- Ripich et al 2000: "Persons with AD appear to strive for communication competence as language declines by increasing certain compensatory pragmatic aspects. . . ."
- Davis & Maclagan 2006: "In moving from early to moderate dementia, the speaker's pauses shift function from word-finding to story-component finding: **timing gives way to planning at story-level.**"
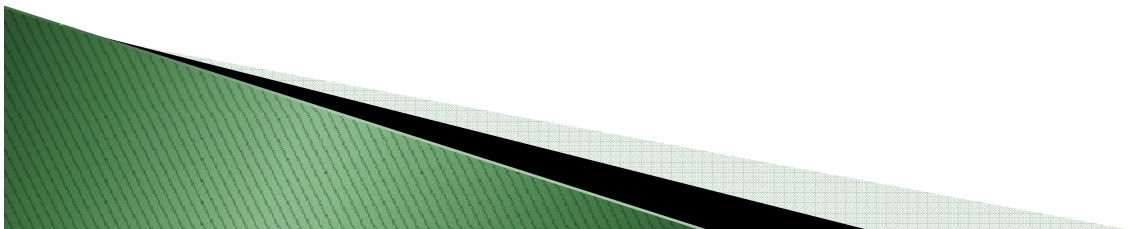
Final comment

▸ We wish here to add filled pauses, fillers, and hesitation markers to what we have already claimed for the use of fixed expressions, extenders and, on occasion, metonymy in pragmatically appropriate ways even when the AD "speakers cannot themselves retrieve the full referential sets implied…. An understanding of the social-interactional functions for discourse features … can contribute to the current discussion of the social construction of dementia and can help professional and family caregivers and care providers to avoid what Sabat et al. (2004) call the "malignant social positioning" that limits the DAT speaker to being seen merely as a patient." (Maclagan, Davis & Lunsford, in press 2007)
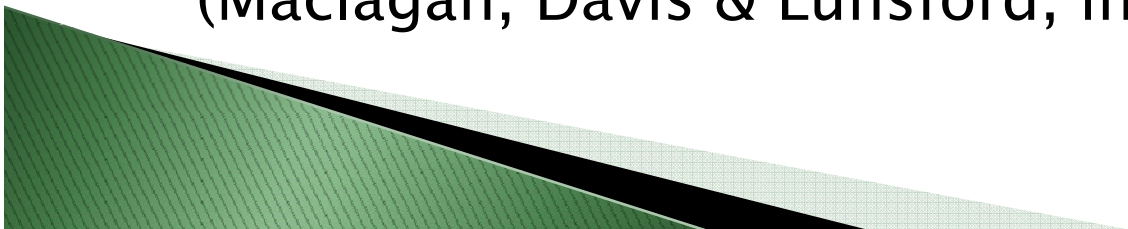
And a postscript

- The use of pauses, hesitation markers, and fillers as they accompany or suggest the presentation of narrative components by AD speakers may best be interpreted at discourse-level (we like Norrick 2007, this conference, 'pragmatic marker') as social-interactional features used for different kinds of finding-strategies and turn-, place- or floor-holders to compensate for other declining pragmatic skills.
- **Next steps** will be to expand the analysis of pauses, fillers, hesitation markers and their interaction with formulaic sequences and narrative components to the study of talk by other speakers as they move through the disease.

  bdavis@uncc.edu
  margaret.maclagan@canterbury.ac.nz