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Investigating lexical diversity in verbs in contrasting discourse samples in aphasic and non-aphasic speakers

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Background

- Verb production difficulties in aphasia
- Influence of genre and communicative situation (Armstrong, 2001; Armstrong & Ferguson, 2010)
- Limits ability when expressing identity, opinions and feelings (Armstrong, 2005)
- What is the impact of aphasia on individuals' capacity to talk about their *quality of life*?

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Participants

- 60 older adults aged 57-88 years
  30 with aphasia – *Western Aphasia Battery*
  30 without aphasia
- 16 females, 14 males each group
- Range of schooling (6-20years)
- Australian metropolitan area & living independently

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Quality of life questions

1. How would you describe the quality of your life, and why do you say that?
2. What things give your life quality?
3. What things take quality away from your life?
4. What would make the quality of your life better?
5. What would make the quality of your life worse?
6. Does communication have an impact on the quality of your life? If yes, then how?

(See Cruice, Hill, Worrall, & Hickson, 2010)

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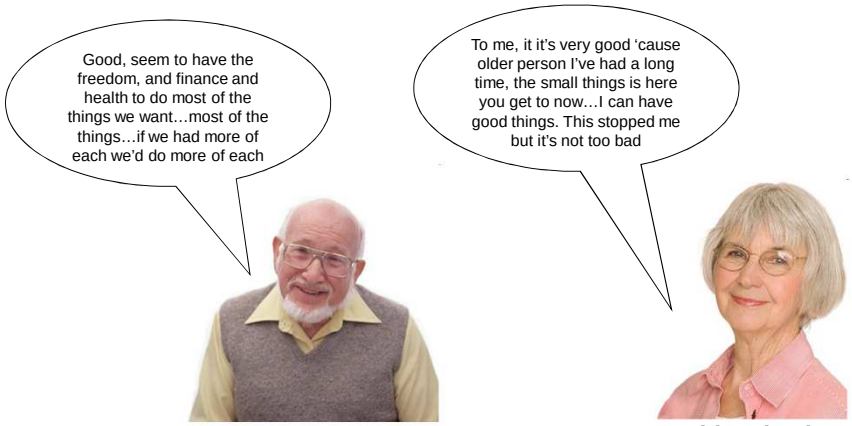
Example: Q1. How would you describe the quality of your life, and why do you say that?



with aphasia

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Linguistic analysis

- Argument structure
- Semantic weight (light versus heavy verbs)
- Semantic category (Halliday's categories)

Intra- & inter-rater reliability

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Argument Structure (Byng & Black, 1989)

- Main verbs & verb groups -> internal arguments
- 0 argument: ***couldn't talk***
- 1 argument: ***is [a wonderful thing]***
- 2 arguments: ***make [a tremendous turn] [for you]***

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Semantic Weight (Berndt, Haendiges, Mitchum, & Sandson, 1997)

- Heavy verbs
  - Carry semantic weight
  - ***swim, think, talk***
- Light verbs
  - Don't carry semantic weight
  - Rely on arguments for meaning
  - ***go, do, be***

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Semantic category (Halliday, 1985, 1994; see Armstrong, 2001)

- Material verbs: ***start, bought, sew***
  - the process of doing
- ☆ Mental verbs: ***suppose, love, hate***
  - thoughts, feelings and psychological states
- ☆ Relational verbs: ***be, have, live***
  - being and having
- Verbal verbs: ***talk, said, invite***
  - speech and conversations
- Behavioural verbs: ***wave, watch, woke***
  - physical actions

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Statistical Results

Similar

- # total verbs
  (Aphasic = 938, range 2-101; Non-aphasic = 1058, range 9-108; t(56) = -0.79, *p=0.43*)
- # 1 and 2 argument structures
- Distribution in semantic weight
  48% Light verbs
  50% Heavy verbs in PWA; 52% in non-aphasic speakers
- Pattern of Halliday's categories

Difference

- # 0 argument structures (higher in PWA: t(56)= 4.53, *p<0.00001*)

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Qualitative Findings

- High percentage of *heavy* verbs
- Substantial percentage of *relational* verbs (38%)
  be, become, die, do, get, have, live
  depends (aphasic)
  own (non-aphasic)
- Abundance of *mental* verbs & richness in *material* verbs

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Mental verbs

accept, care for, cope, delight, frustrate, handle, impose, manage, meant, miss, play, subjected to, succeed, used, watch, wonder

appreciate, believe, bogged, bothering, brood, concerned, convinced, decide, distinguish, disturb, forget, get on, mind, overcome, put off, rely, settled, support, take care, tied, wasting

annoy, depend, enjoy, feel, guess, hate, know, learn, like, love, need, realise, reckon, remember, seem, suppose, think, thought, understand, want, worry

with aphasia

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Material verbs

bought, catered, changed, choose, clean, confined, fishing, garden, get away, get by, going out, handing out, hang on, help, hide, hold up, involved, kill, leave, left, lose, owe, phone, prepare, restrain, ride, run, scrabble, see, sew, shake off, show, sign, smoke, stand, swim, tour, wash up, win

alter, bring, broke, built, covers, destroy, entertain, exercise, grown, hit, increase, investigate, keep up, lead, let, manage, meeting, overcome, paid, proved, record, retire, send, serves, set, share, sit, spoil, struck, take up, tape, took up, travel, turn, twiddle, waste

come, cook, driving, fall, find out, get, get out, get rid, give, go, hold, lost, make, married, matter, moving, play, put, read, ring up, start, stay, stop, take, try, use, walk, wipe, work, writing

with aphasia

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☆ Impact of question on verb produced

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Verbs according to question

Q1 highest % 1 args.: *[I] do [everything I want to do]*
Q2 highest % 2 args.: *[I]'ll have [a laugh] [with them even]*

Q3 PWA used more heavy verbs than normal speakers:
think, talk, sew, cook, manage, remember

Q4 & Q5 Normal speakers used more heavy verbs than PWA:
share, communicate, know
happen, deteriorate, lose

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Summing up and Implications

(1) People with aphasia appear to access the full range of verbs, especially *relational* verbs, *mental* verbs, and *heavy* verbs (caution variability)

(2) Further exploration of functionality and depth

Good, seem to have [the freedom, and finance and health to do most of the things we want…most of the things]

[I] can have [good things]

(3) Multiple and *contrasting* discourse samples are needed in further research and clinical practice

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Study 2 (Elizabeth Walkden)

- Contrasting discourse samples & thematic embedding (TE)
  - WAB Event/ Picture Description
  - QoL Questions
- Utilizing existing data with older adults with aphasia (from Cruice, 2001)
- New data collection with older adults (no neurological difficulties) in Manchester, England
- Impact of task & aphasia

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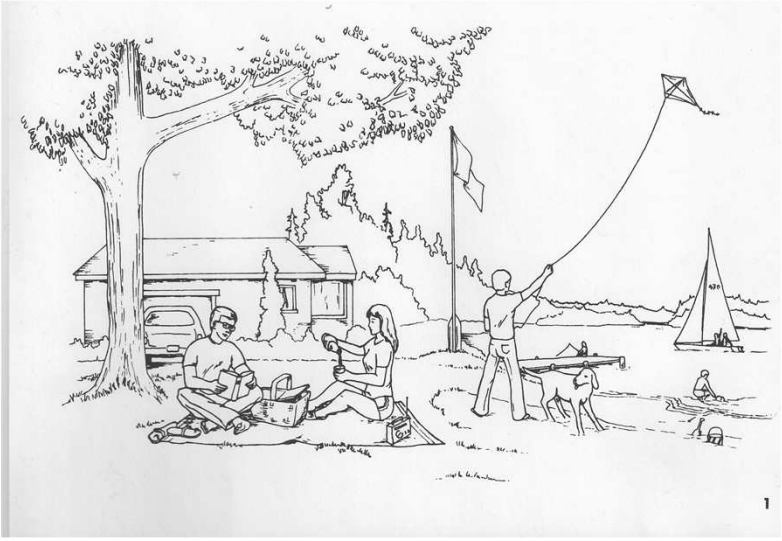

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Participants

Normal older adults
- Age = 86yrs (SD = 5.92, range 67-92)
- Education = 12yrs (SD = 2.94, range 9-16)
- 7 male, 21 female
- 2 nursing homes run by same private company

Older adults with aphasia
- Age = 71yrs (SD = 8.55, 57-88)
- Education = 11yrs (SD = 3.75, 6-20)
- 12 male, 15 female

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Statistical Results

- **QoL task** encouraged significantly more verbs than picture description task for both participant groups (non-aphasic t(27)= -6.29, p=>0.000; aphasic t(26)= -3.84, p=0.001)
- **Non-aphasic speakers** generated significantly more verbs than aphasic speakers on both tasks (picture t(53)= 2.56, p=0.014; t(53)= 2.54, p=0.014)

Semantic Weight

☆ **Non-significant differences** in heavy & light verb use for task, and for participant group

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Argument Structure

- 1 arg structures most commonly produced form
- Non-aphasic speakers produced significantly **more TE** structures on **QoL task** than picture description (t(27) = -2.218, p = 0.035); & approaching significance on 2 arg structures (t(27) = 2.035, p = 0.052)
- Aphasic speakers – non-significant
- **Non-aphasic speakers** produced significantly **more TE** on QoL task (t(53) = 7.169, p = >0.000), and on picture task (t(53) = 2.842, p = 0.006), than aphasic speakers
- **Aphasic speakers** produced significantly **more 1 arg** structures on QoL task (t(53) = -3.037, p = 0.004), than non-aphasic speakers

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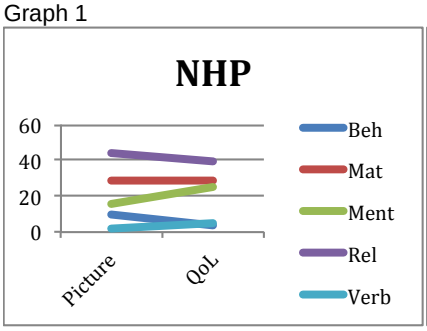
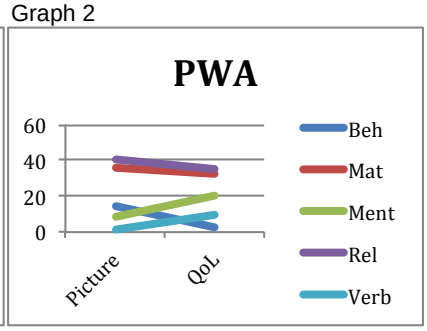
Halliday verb types

Graph 1



Graph 2



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Halliday continued

- *Relational* verbs, followed by *material*
- **QoL task** encouraged more *mental* verbs than picture task, and marginally more *verbal* verbs
- **Picture task** encouraged more *relational* and *behavioural* verbs

More statistical analysis required

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Summing up & Implications

(1) QoL task encouraged more verbs (in total), more TE in non-aphasic speakers, more 1 arg in aphasic speakers, and more mental verbs
Picture task encouraged more relational and behavioural verbs

(2) Non-aphasic speakers produced more verbs and more TE structures on both tasks, compared with aphasic speakers

(3) *Relational* then *material* verbs dominate both discourses
Heavy versus ***light***

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