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Analysis of Verb Expressions in the Conversational Speech of Kannada-English Speaking Bilingual Persons with Mild Dementia

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Abstract

Dementia is characterized by the breakdown of intellectual and communicative functioning accompanied by personality change (DSM IV, American Psychiatric Association, 1994). Persons with dementia often experience difficulty in naming skills which can be attributed to semantic memory deficits. This can further influence various linguistic expressions such as lexical and morphological structures. The present study aimed to quantitatively and qualitatively analyze the presence of different types of verb inflections in bilingual (Kannada-English) persons with mild dementia. Considered for the study were 10 healthy elderly and 10 persons with mild dementia who were Kannada-English bilinguals. Spontaneous, conversational speech in all the participants was transcribed from which different types of verb inflexions in Kannada were extracted and analyzed. They included infinite verb, imperative verbs, negative imperatives, optative, and participle verbs. These were quantitatively and qualitatively analyzed for mean number of verbs and their nature including code mixing and switching identifying the significant differences between the two groups of participants. Results suggest that these measures offer a sensitive method for differentiating persons with mild dementia from healthy elderly. The study further helps in delineating prognostic indicator and planning rehabilitative measures which can be helpful tool for management.

Keywords

dementia, conversational speech, verbs

1. Introduction

Dementia is a debilitating condition which causes progressive deterioration in language, cognitive, and behavioral skills. The result is a chronic deterioration and can affect single or multiple domains simultaneously. There are various stages of dementia from mild to advanced. The discourse sample can be obtained up to the mild stage of the disease which can be analyzed qualitatively and quantitatively. Sensitivity of discourse measures to the subtle communicative deficits in persons with dementia varies according to the analyses used. Studies carried out using within- and across-sentence measures provide mixed findings. For example, some examining cohesion has found significant differences between individuals with dementia and no dementia (Coelho, Ylvisaker, & Turkstra, 2005). Others have found comparable performances among the groups (Moran & Gillon, 2010).

A major contribution to the analysis of discourse data in dementia is the presence of word-finding difficulties in these individuals. Persons with dementia demonstrate word-finding difficulties (anomia), sentence comprehension deficits, and lack of cohesion in discourse. Hence, anomia is the first symptom observed in persons with dementia. They exhibit difficulty in coming up with words in structural tasks such as word list generation, as well as in elicited narratives and spontaneous conversation (Nicholas, Obler, Albert, & Helm-Estabrooks, 1985; Kempler, Curtiss, & Jackson, 1987). Their speech includes semantically empty words (e.g., thing, stuff, etc.) which are scattered throughout the utterances in place of the content words, thereby maintaining fluency (Arnott, Jordan, & Murdoch, 1997).

Further studies suggest that sentence production in persons with dementia is characterized by intact morphosyntactic structures (Kempler, Curtiss, & Jackson, 1987; Kave, Leonard, Cupit, & Rochon, 2007). The grammatical errors made by persons with dementia are similar in type and proportion to those made by healthy elderly (Altmann, Kempler, & Andersen, 2001). Almor, Kempler, Andersen, Tyler, and MacDonald (1999) associated discourse impairments in persons with dementia to the deficits in working memory. They stated that the speech of persons with Alzheimer type dementia contained more pronouns than the speech of healthy participants. These deficits have been accounted for impairments in extra-linguistic processing in persons with dementia. This can further cause difficulty in constructing an informative and coherent narrative (Ripich & Terrell, 1988; Chapman, Highley, & Thompson, 1998).

The impairments in naming and discourse construction will have considerable effect on verb formulation in the utterances. Kielar and Orange (2007) measured changes of noun and verb confrontation and generative in persons with early clinical stage dementia of Alzheimer's type. The study suggests that persons with dementia have more difficulty in naming nouns as compared to verbs. This difficulty did not differ with respect to regular or irregular verbs which enhance the understanding of differential effect of dementia on linguistic elements.

Researchers were also interested in understanding the effect of bilingualism/multilingualism on language production in persons with dementia (Hyltenstam & Obler, 1989; Rabadan, 1994; McMurtray,

Saito, & Nakamoto, 2009). Hyltenstam and Stroud (1993) reported on two patients with DAT (dementia of Alzheimer's Type) who had difficulties in language choice. They would choose the inappropriate language as a base language while speaking to a monolingual interlocutor and they would code-switch with a monolingual interlocutor.

Obler, De Santi and Goldberger (1995) attempted to determine the kinds of code switching and language choice errors that may occur in bilingual persons with DAT. The persons with dementia do not make language choice appropriately and therefore does not inhibit the other language. Mendez, Perryman, Ponton and Cummings (1999) studied 51 bilingual persons with dementia. These individuals presented an evident tendency for words and phrases from native language to intrude into English conversational speech.

1.1 Aim of the Study

The present study aimed to quantitatively and qualitatively analyze the presence of different types of verb inflections in bilingual (Kannada-English) persons with mild dementia. Further the study also explored the nature of code mixing and code switching in their utterances.

2. Method

2.1 Participants

A total of 20 participants were included in the present study. Among them 10 were Healthy Elderly (HE) and 10 Persons diagnosed with mild Dementia (PWD). All the participants were predominantly bilinguals (referred to as "bilinguals" hence forth; who spoke Kannada as well as English). The age range of the participants was 65-85 years. All the participants had a minimum of 12 years of formal education. They spoke Kannada (Kannada is one of the major Dravidian languages predominantly spoken in the state of Karnataka, South India) as their first language (L1) and English as their second language (L2). The vision and hearing abilities were corrected to normal/near normal limits. The proficiency of language was measured using International Second Language Proficiency Rating Scale (ISLPR) by Wylie and Ingram (2006) and the participants who scored "three" and above were only considered for the study. The participants in the clinical group consisted of persons diagnosed as mild dementia who were diagnosed by neurologists/psychiatrists/neurosurgeon or geriatric medical specialist. Among 10 Persons with Dementia (PWD) six persons had Alzheimer's type, two persons had vascular etiology and two had mixed type of dementia. Those in mild stage of dementia were only considered for the study. The demographic and neurological details of the participants in the clinical group are as shown in Table 1.

Table 1. Demographic and Neurological Status of the Clinical Participants

Sl no.	Age/sex	Language	Diagnosis	Neuroimaging results
1.	67/f	B	Mild AD	Bilateral medial temporal atrophy
2.	72/f	B	Mild AD	Diffuse central atrophy
3.	69/f	B	Mild VD	Diffuse brain atrophy
4.	68/m	B	Mild mixed dementia	Multiple cerebral infarcts
5.	85/f	B	Mild AD	Bilateral medial temporal atrophy
6.	68/m	B	Mild AD	Diffuse brain atrophy
7.	66/m	B	Mild AD	Bilateral sub-cortical infarcts
8.	71/m	B	Mild mixed dementia	Multiple cerebral infarcts
9.	69/m	B	Mild VD	Diffuse brain atrophy
10.	75/m	B	Mild AD	Bilateral medial temporal atrophy

CDR=Clinical dementia rating (score "1" suggests mild dementia), m=male, f=female, AD=Alzheimer's dementia, M=monolingual, B=bilingual, VD=vascular dementia.

2.2 Procedure

2.2.1 Data Collection

Prior to the data collection informed consent was obtained from all the participants irrespective of the groups. Researcher as well as participants signed in the consent form. Authorized persons accompanying the persons with dementia signed the consent form. Followed by this discourse samples in Kannada were collected from all the participants in the form of conversation genre. Two topics were selected for the same. The first one being "*the arrangements to be made for a marriage function*" and the second one is "*the differences in present generation as compared to that of previous generation*".

The participants were engaged in a semi structured interview to encourage them to speak about the above topics. They were asked open ended questions to continue the conversation without influencing/interfering in the nature of their responses. Each interview session was video recorded with a Handycam (Sony digital recorder H302233). A sample of duration between 15-20 minutes was collected from each of the participants accounting for at least 700 words which are adequate for the linguistic analysis.

2.2.2 Analysis of Types of Verbs

Prior to subjecting for analysis, the video recorded discourse samples (of picture description and conversation) were transcribed. Interviews were transcribed using IPA (International Phonetic Alphabets, 2005) rules. All the words spoken only by the participants were transcribed excluded researcher's utterances. All the words were transcribed exactly as they had been spoken, including repetitions, incomplete words, interjections, paraphasias and mispronunciations. Numbers were transcribed as words.

The present study explored the usage of five kinds of verbs by the participants. That is, infinite verb, imperative verbs, negative imperatives, optative, hortative and participle verbs. The definition and examples of each of these verbs are found in Table 2.

Table 2. Explanations for Different Types of Verbs

Sl no.	Verb	Definition	Example
1.	Finite verb	A **finite verb** is a form of a **verb** that has a subject (expressed or implied) and can function as the root of an independent clause	Eg: /baru/+/illa/=/baralilla/ (Did not come)
2.	Imperative verb	**Imperative verbs** are **verbs** which create an **imperative** sentence, i.e., a sentence that gives an order	Eg: /kuDijo/(drink for male) /kuDije/(drink for female)
3.	Negative imperatives	The negative form is do+not+base verb.	Eg: /ho:gu/+/a/+/ba:radu/=/ho:gaba:radu/ (Do not go)
4.	Optative	A **verb** or an expression in the **optative** mood	Eg: /avaLu/+/ma:Dali/=/avaLu ma:Dali/(Let her do).
5.	Participle verb	A **participle** is a form of a **verb** that is used in a sentence to modify a noun, noun phrase, **verb**, or **verb** phrase, and thus plays a role similar to that of an adjective or adverb.	Eg: Present participle: sitting Past participle: Was sitting Future participle: will sit

These different types of verb inflexions in Kannada were extracted and analyzed. The presence of number of these verbs in the conversational samples was calculated for all the participants.

2.2.3 Analysis of Nature of Bilingualism

Further the nature of code mixing and code switching in the discourse samples were analyzed using Matrix Language Frame Model developed by Myers-Scotton (1993) and Munoz (1999). The parameters considered under this model are detailed in Table 3.

Table 3. Description of Parameters of Code Mixing and Code Switching

Constituent	Definition
ML Islands	ML morphemes demonstrating syntactic structure of ML
ML shift	Change in ML in consecutive utterances or clausal structure
EL Islands	Well-formed constituents consisting of at least 2 EL morphemes showing syntactic structure of EL which has been inserted into ML
ML+EL	A single EL (not a borrowed form) inserted into the syntactic frame of any number of ML morphemes.
Borrowed form	A lexeme from one language incorporated into the morpho-syntactic structure of the second language and is widely accepted by the monolingual speakers of that language.
Revisions	Lexical insertions that do not contribute to the meaning of the utterance including speech errors, restatements, circumlocutions and are indicators of word finding problems.

3. Results

The performance of all the participants on the measures related to expression of verbs and nature of code mixing and code switching in the discourse samples are as follows. The results are described under two phases and are presented with respect to the groups viz Health Elderly (HE) and Persons With Dementia (PWD).

3.1 Phase I: The Measures Related to Expression of Verbs

Table 4 illustrates the results of descriptive statistics (mean, median and standard deviation) for the measures related to expression of verbs with respect to the two groups. The Table 4 depicts the mean and standard for the same.

Table 4. Descriptive Statistics for the Different Types of Verbs

Types of verbs	Group	N	Mean	Median	SD
Infinite Verb	HE	10	50.09	50.4	2.55
	PWD	10	19.1	19.25	1.79
Imperative Verb	HE	10	38.70	38.60	1.33
	PWD	10	21.90	21.20	3.03
Negative Imperative Verb	HE	10	30.70	29.80	3.16
	PWD	10	10.70	10.20	1.94
Optative Verb	HE	10	18.70	18.66	1.05
	PWD	10	8.60	8.50	2.36
Participle Verb	HE	10	57.80	58.00	3.22
	PWD	10	29.30	29.00	3.52

HE=Health elderly, PWD=persons with dementia, N=number of participants, SD=standard deviation.

As mentioned early, the participants from the clinical group (persons with dementia) had different causes of dementia Alzheimer's disease, vascular dementia and mixed dementia. Hence the scores obtained from discourse measures and cognitive assessment was subjected to non-parametric tests using Kruskal Wallis to check whether their performance varied with the type of the dementia causing disorder. Also, Kruskal Wallis H test was administered to check whether there were any statistically significant differences between the three types of dementia. Table 5 shows the results of the same.

Table 5. Result of Kruskal Wallis H Test between the Three Types of Dementia

Parameters	df	Significance
Infinite Verb	1	0.731
Imperative Verb	1	0.092
Negative Imperative Verb	1	0.390
Optative Verb	1	**0.039***
Participle Verb	1	0.314

As observed from the Table 5 there was no significant difference between the persons with dementia for the types of verbs except for Optative verb at $p<0.05$ level. Since there was significance difference within PWD (Alzheimer's and vascular type) for Optative verb a Mann-Whitney test (non-parametric) was used to cross check the findings. The results showed significant difference for Optative verb between persons with Alzheimer's disease and vascular type dementia ($|z|=0.039$; $p<0.001$), persons with Alzheimer's disease and mixed dementia ($|z|=0.038$; $p<0.001$), but not for persons with vascular type and mixed dementia ($|z|=0.10$; $p<0.05$) at $p<0.05$ level of significance. Further, Kruskal Wllis test was also used to check for the differences in performances between HE and PWD for different types of verbs. Table 6 depicts the results of the same. As observed from table 6 there was highly significant difference between HE and PWD for all the types of verbs measured in the present study.

Table 6. Results of Kruskal Wallis with Respect to Types of Verbs in Healthy Elderly and Persons with Dementia

Parameters	Category	df	Significance
Infinite Verb	HE	1	0.00
	PWD		
Imperative Verb	HE	1	0.00
	PWD		
Negative Imperative Verb	HE	1	0.00
	PWD		
Optative Verb	HE	1	0.00
	PWD		
Participle Verb	HE	1	0.00
	PWD		

HE=Health elderly, PWD=persons with dementia, df=degrees of freedom.

3.2 Phase 2: Nature of Code Mixing and Code Switching in the Discourse

Table 7 shows the result of descriptive statistics depicting mean, median and standard deviation for the parameters used to measure code mixing and code switching in HE and PWD. Kruskal Wallis was administered to check whether there were any statistically significant differences between the three types of dementia. Table 8 shows the results of the same. As observed from the Table 8 there was no significant difference within PWD for the measures of nature of code mixing and code switching in the discourse. Hence they were combined as a group.

Table 7. Descriptive Statistics for the Different Types of Verbs

Parameters	Group	N	Mean	Median	SD
ML island	HE	10	65.70	66.50	4.39
	PWD	10	40.20	41.00	4.89
ML shift	HE	10	5.10	5.14	0.87
	PWD	10	19.70	19.40	1.70
EL island Verb	HE	10	11.20	10.85	1.54
	PWD	10	20.00	19.75	1.82
Borrowed form	HE	10	9.20	9.00	1.81
	PWD	10	9.40	8.83	1.95
Revision	HE	10	11.60	11.75	1.26
	PWD	10	0.60	0.55	0.69

PWD=persons with dementia, N=number of participants, SD=standard deviation.

Table 8. Results of Kruskal Wallis with Respect to for the Parameters Used to Measure Code Mixing and Code Switching within Persons with Dementia

Parameters	df	Significance
ML island	1	0.39
ML shift	1	0.12
EL island Verb	1	0.08
Borrowed form	1	0.73
Revision	1	0.85

Kruskal Wallis test was also used to check for the differences in performances between HE and PWD for nature of code mixing and code switching. Table 8 depicts the results of the same. As observed from the Table 9 there was highly significant difference between HE and PWD for the parameters of code mixing and code switching except for the borrowed form.

Table 9. Results of Kruskal Wallis with Respect to Nature of Code Mixing and Code Switching in Healthy Elderly and Persons with Dementia

Parameters	Category	df	Significance
ML island	HE	1	0.00
	PWD		
ML shift	HE	1	0.00
	PWD		
EL island Verb	HE	1	0.00
	PWD		
Borrowed form	HE	1	0.878
	PWD		
Revision	HE	1	0.00
	PWD		

HE=Health elderly, PWD=persons with dementia, df=degrees of freedom.

4. Discussion

Although the amount of discourse gathered from the participants did not vary, the measures of verbs were sufficient enough to discriminate between HE and PWD. Number of verbs used by PWD was lesser than HE. They were unable to produce discourse with richer verbs which seemed to reflect their restricted episodic memory (Caseleti & Yangihara, 1991; Cummings, 2000) leading to increased need to encode new information frequently. The measures of different types of verbs are based on word frequency features of discourse. The inability or reduced performance of PWD also reflects their

reduced semantic storage abilities (Chertkow, Bub, & Seidenberg, 1989). Also, the reasons or ways in which the discourse measures reflect are influenced by cognitive parameters which are well illustrated. For example, the content or verbs form lexical-semantic maps are organized through cognitive principles. In persons with dementia cognitive decline occurs with both in accessing the information and limitations in encoding the information at mild stage (Nicholas, Obler, Albert, & Helm-Estabrooks, 1985; Kempler, Curtiss, & Jackson, 1987). Therefore, it may be said that lexical richness was due to memory or word retrieval difficulty. Additionally, difficulty in connecting the working memory and its related situations to the long term storage was observed. Hence, lexical-grammatical aspects (choosing words, constructing sentences, organizing the discourse) of the cognition was impaired (Ross-Swain, 1992; Voss & Bullock, 2004; Feyereisen, Berrewaerts, & Hupet, 2006).

It was further observed that PWD provided explanations for verbs rather than providing specific verbs. This reflected their inability to provide appropriate tokens and instead provided broader explanation for the same which implied that the persons with dementia experienced severe word retrieval problems. This would again be attributed to their poor semantic storage and reduced retrieval. They failed to draw the appropriate or specific words during conversation from their long term store. As a consequence to this, they used broader term to complete the conversation (Pratt, Boyes, Robins, & Manchester, 1989; Kemper et al., 1990; Adams, Smith, Pasupathi, & Vitolo, 2002).

The analysis related to the nature of code mixing and code switching suggested that both the groups (HE and PWD) differed from each other in using ML islands and EL islands. But, they did not differ from each other in using borrowed forms as they were bilinguals. Further, the effect of dementia on clinical group caused difficulty in planning and executing discourse in ML (main leading to higher instances of ML shift in them). It is clearly visible that PWD had difficulty to shift back to ML from the embedded language. These difficulties can be attributed to the impaired cognitive linguistic functions in them.

The measures used in the present study differentiated the clinical group from health elderly. Conversation sample provided rich source of data to study verb in bilingual context. Overall reduction in performance of PWD is accounted for underlying dysfunctions in planning, execution, word-retrieval, memory and other cognitive linguistic abilities. Future studies in the line of comparison of performances of monolingual and bilingual groups would provide further details of influence of language on usage of verbs.

References

Adams, C., Smith, M. C., Pasupathi, M., & Vitolo, L. (2002). Social context effects on story recall in older and younger women: Does the listener make a difference? *Journal of Gerontology: Psychological Sciences, 57B*, 28-40. https://doi.org/10.1093/geronb/57.1.P28

Almor, A., Kempler, D., MacDonald, M. C., Andersen, E. S., & Tyler, L. K. (1999). Why do Alzheimer patients have difficulty with pronouns? Working memory, semantics, and reference in comprehension and production in Alzheimer's Disease. *Brain and Language, 67*(3), 202-227. https://doi.org/10.1006/brln.1999.2055

Altmann, L. J. P., Kempler, D., & Andersen, E. S. (2001). Speech production in Alzheimer's disease: Re-evaluating morpho-syntactic preservation. *Journal of Speech, Language, and Hearing Research, 44*, 1069-1082. https://doi.org/10.1044/1092-4388(2001/085)

Arnott, W. L., Jordan, F. M., Lethlean, J. B., & Murdoch, B. E. (1997). Narrative discourse in Multiple Sclerosis: An investigation of conceptual structure. *Aphasiology, 11*(10), 969-991. https://doi.org/10.1080/02687039708249422

Caselli, R. J., & Yanagihara, T. (1991). *Memory Disorders in Neurological Diseases and Therapy*. New York: Marcel Dekker.

Chapman, S. B., Highley, A. P., & Thompson, J. L. (1998). Discourse in fluent aphasia and Alzheimer's disease: Linguistic and pragmatic considerations. *Journal of Neurolinguistics, 11*(1-2), 55-78. https://doi.org/10.1016/S0911-6044(98)00005-0

Chertkow, H., Bub, D., & Seidenberg, M. (1989). Priming and semantic memory loss in Alzheimer's disease. *Brain and Language, 36*, 420-446. https://doi.org/10.1016/0093-934X(89)90078-3

Coelho, C., Ylvisaker, M., & Turkstra, L. (2005). Non-standardized assessment approaches for individuals with traumatic brain injuries. *Seminars in Speech & Language, 26*(4), 223-241. https://doi.org/10.1055/s-2005-922102

Cummings, J. L. (2000). Cognitive and behavioral heterogeneity in Alzheimer's disease: Seeking the neurobiological basis. *Neurobiological Ageing, 21*(6), 845-861. https://doi.org/10.1016/S0197-4580(00)00183-4

Feyereisen, P., Berrewaerts, J., & Hupet, M. (2006). Pragmatic skills in the early stages of Alzheimer's disease: An analysis by means of a referential communication task. *International Journal of Language and Communication Disorders, 42*(1), 1-17. https://doi.org/10.1080/13682820600624216

Hyltenstam, K., & Obler, L. K. (1989). *Bilinguals across the lifespan: Aspects of Acquisition, Maturity and Loss*. New York: Cambridge University Press. https://doi.org/10.1017/CBO9780511611780

Hyltenstam, K., & Stroud, C. (1993). Second language regression in Alzheimer's dementia. In K. Hyltenstam, & A. Viberg (Eds.), *Progression and regression in language* (pp. 222-242). Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511627781.010

Kave, G., Leonard, C., Cupit, J., & Rochon, E. (2007). Structurally well-formed narrative production in the face of severe conceptual deterioration: A longitudinal case study of a woman with semantic dementia. *Journal of Neurolinguistics*, *20*(2), 161-177. https://doi.org/10.1016/j.jneuroling.2006.06.003

Kemper, S., Rash, S., Kynette, D., & Norman, S. (1990). Telling stories: The structure of adults' narratives. *European Journal of Cognitive Psychology*, *2*, 205-228. https://doi.org/10.1080/09541449008406205

Kempler, D., Curtiss, S., & Jackson, C. (1987). Syntactic preservation in Alzheimer's disease. *Journal of Speech and Hearing Research*, *30*, 343-350. https://doi.org/10.1044/jshr.3003.343

Kielar, A., & Orange, J. B. (2007). Processing of nouns and verbs in Dementia of Alzheimer's Type (DAT). *Proceedings of the Festival of International Conferences on Caregiving, Disability, Aging and Technology: Advances in NeuroRehabilitation*, 1-4. https://doi.org/10.4017/gt.2006.04.04.001.00

McMurtray, A., Saito, E., & Nakamoto, B. (2009). Language preference and development of dementia among bilingual individuals. *Hawaii Medical Journal*, *68*(9), 223-226.

Mendez, M. F., Perryman, K. M., Ponton, M. O., & Cummings, J. L. (1999). Bilingualism and dementia. *Journal of Neuropsychiatry and Clinical Neuroscience*, *11*(3), 411-412. https://doi.org/10.1176/jnp.11.3.411

Moran, C., & Gillon, G. T. (2010). Expository discourse in older children and adolescents with traumatic brain injury. In M. A. Nippold, C. M. Scott, M. A. Nippold, & C. M. Scott (Eds.), *Expository discourse in children, adolescents, and adults: Development and disorders* (pp. 275-301). New York, US: Psychology Press.

Nicholas, M., Obler, L. K., Albert, M., & Helm-Estabrooks, N. (1985). Empty speech in Alzheimer's disease and fluent aphasia. *Journal of Speech and Hearing Research*, *28*, 405-410. https://doi.org/10.1044/jshr.2803.405

Obler, L. K., de Santi, S., & Goldberger, M. A. (1995). Bilingual dementia: Pragmatic breakdown. In Lubinski (Ed.), *Dementia and communication: Research and clinical implications*. San Deigo: Singular.

Pratt, M. W., Boyes, C., Robins, S., & Manchester, J. (1989). Telling tales: Aging, working memory, and the narrative cohesion of story retellings. *Developmental Psychology*, *25*, 628-635. https://doi.org/10.1037/0012-1649.25.4.628

Rabadan, O. (1994). The assessment of bilingualism in normal aging with the bilingual aphasia test. *Journal of Neurolinguistics*, *8*(1), 67-73. https://doi.org/10.1016/0911-6044(94)90008-6

Ripich, D. N., & Terrell, B. Y. (1988). Cohesion and coherence in Alzheimer's disease. *Journal of Speech and hearing Disorders*, *53*, 8-14. https://doi.org/10.1044/jshd.5301.08

Ross-Swain, D. (1992). *Cognitive Linguistic Improvement Progam*. San Diego, CA: Singular Publishing Group.

Voss, S. E., & Bullock, R. A. (2004). Executive function: The core feature of dementia. *Dementia and Geriatric Cognitive Disorders*, *18*(1), S17-S23. https://doi.org/10.1159/000079202

Wylie, E., & Ingram, D. E. (2006). *International Second Language Proficiency Ratings (ISLPR) general proficiency version for English Nathan*. Qld: Centre for Applied Linguistics and Language, Mt Gravatt Campus Griffith University.