Semantic and Pragmatic Impairments of Person with Alzheimer's Disease

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ABSTRACT

Understanding Alzheimer's disease affecting communication ability can be done by investigating sufferers' language impairment. Therefore, this study aims to analyze the language impairments of a person with Alzheimer's disease as represented in The Father movie. It focused on the semantic and pragmatic impairment in the speech produced by Anthony, the main character with Alzheimer's disease. A qualitative method is employed to deeply understand the language impairments. The findings of this study indicated that the types of semantic impairments found are: errors in verbal fluency, difficulty in word comprehension, empty speech, word retrieval difficulty, semantic paraphasia, and naming difficulty. In addition, the pragmatic impairments found are repeating ideas, speaking too loudly, talking excessively at inappropriate times, and deviating from the topic. These findings have important implications for healthcare professionals and caregivers who work with people with Alzheimer's disease. By understanding the specific language impairments experienced by people with this condition, they can develop effective communication strategies that consider the person's individual needs and abilities. Furthermore, more people can help to support the sufferer of Alzheimer's disease and enhance their well-being and social connections.

Keywords: Language Impairments; Semantic Impairment; Pragmatic Impairment; Alzheimer's disease

A. Introduction

Language impairment is currently a significant issue affecting many individuals, and it is crucial to continue studying and understanding it. Language impairment is one of the essential discussions in linguistics, especially in psycholinguistics, because it affects the communication process. Language impairment is a lack of ability for comprehension and/or getting involved in casual conversation that may also affect the difficulty for expressing ideas in written and/or other symbol systems. Such a difficulty also covers minimum competence in terms of language (phonology, morphology, and syntax), the content of language (semantics), and/or the use of language in

communication (pragmatics) (Tennessee Department of Education, 2018). Language impairments can be caused by brain damage or mental illness. People with mental illness or brain damage will respond slowly or absurdly due to an inadequate connection between the brain and the dysfunctional brain region. One of the causes of brain damage can be Alzheimer.

Today, it is getting more significant to learn about language impairment because it affects a growing number of individuals, including those with developmental disorders, traumatic brain injuries, and degenerative diseases such as Alzheimer's disease. Alzheimer's disease is a progressive neurodegenerative disease that impairs memory and cognitive judgment (Cass, 2017). According to the Indonesian Ministry of Health, around 46 million people have Alzheimer's disease in the world. Some Alzheimer's patients have symptoms such as agnosia (the inability to recognize certain sensory information, such as shapes, sounds, people, smells, etc.) and language difficulties. Alzheimer's disease is the commonest etiology for dementia. The person with Alzheimer's disease progresses through mild, moderate, and severe stages. Alzheimer's disease is characterized by memory loss and difficulties paying adequate attention or concentration, inability to make proper orientation, judgment, and using correct language (Ferris & Farlow, 2013). Language impairment is a significant issue in most people with Alzheimer's disease as they undergo moderate-to-severe disease stages.

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Unlike an earlier study that analyzed language impairments of an individual with Alzheimer's disease in "Still Alice" movie based on the theory of Tang-Wai and Naida (in Wicaksono, 2017), the present study examines language impairments of Alzheimer's character in The Father movie using the theory of Kempler (1991) & Savundranayagam et al. (2005) (in Ferris & Farlow, 2013). In addition, other previous studies focus on various linguistic tasks. First, Salehi et al. (2017) discuss the causes of naming errors by Alzheimer's patients at Isfahan University of Medical Sciences. Second, McDowd et al. (2011) recognized the cognitive components that underlie fluency performance in Alzheimer's disease and Parkinson's disease. The results show that Alzheimer's patients hold the worst fluency performance. Third, another study is Silagi et al. (2015). It analyzed the performance of Alzheimer's patients on a naming task in the mild and moderate phases and examined how their linguistic skills deteriorated in each phase. Last, Slegers et al. (2018) provided an overview of the most

common areas of disturbance in Alzheimer's disease as they appear in the picture description task.

In addition to the difficulties of Alzheimer's patients in various linguistic tasks, most researchers found that the dominant difficulty suffered by Alzheimer's patients is in the semantics area. First, Altmann et al. (2008) discussed how the decline in semantic features interacts with the demands of test tasks used to evaluate performance. Semantic deficits can disrupt the production and understanding of sentences and discourses. Second, Verma and Howard (2011) focused on the contribution of semantic memory and language dysfunction to Alzheimer's disease. Third, Sajjadi et al. (2014) discussed the implementation of picture description tasks and semi-structured interviews to diagnose language impairments in Alzheimer's disease. Fourth, Montembeault et al. (2017) investigated naming unique entities in the semantic variant of Alzheimer's disease by Alzheimer's patients in Centre Hospitalier Universitaire de Québec. Last, Fraser et al. (2016) showed four impairments experienced by patients with Alzheimer's disease through a picture description task. The four impairments include semantic, acoustic, syntactic, and information impairment.

Aspect that has not been explored much is language impairments from the pragmatic view. For example, Kempler's theory (1991) regarding language impairments does not only contain the aspect of semantic but also pragmatic impairments. These include word retrieval difficulty, naming difficulty, difficulty with word comprehension, semantic paraphasia, empty speech, inventing words, and errors in verbal fluency (semantic aspects). Meanwhile, the pragmatic aspects include talking excessively at inappropriate times, speaking too loudly, repeating ideas, and deviating from the topic (Savundranayagam et al., 2005).

This study benefited from extant works which employed the topic of language impairments of Alzheimer's character in the movie (Wicaksono, 2017), and other discussions examine language impairments from the semantic aspect (Salehi, et al.; McDowd, et al., 2011; Silagi, et al., 2015; Slegers, et al., 2018; Altmann, et al., 2008; Verma & Howard, 2011; Sajjadi, et al., 2014; Montembeault et al., 2017; Fraser et al., 2016;). Nevertheless, it draws the novelty by filling the gap in the pragmatic aspect of language impairments of Alzheimer's disease since previous research findings suggest

that semantic and pragmatic levels of processing are interdependent. In addition, no one has ever researched Alzheimer's disease in The Father movie, released in 2020. This movie was about Anthony, who refuses all assistance from his daughter as he ages. Therefore, this movie is worth studying more as it concerns Anthony's point of view, and given that his point of view is affected by his Alzheimer's. This research hole is salient to be further studied to provide an academic understanding of language impairments of Alzheimer's disease. This information is beneficial for students and lecturers interested in Psycholinguistics research, especially Alzheimer and language impairments.

The current study provided distinct findings from previous studies since it focuses on language impairments of Alzheimer's disease using the theory of Kempler (1991) & Savundranayagam et al. (2005), which previous researchers have not explored. The data was taken from utterances of Alzheimer's characters in The Father movie. Furthermore, this study examines language impairments and the dominance of language impairments produced by Alzheimer's character. This topic is very significant to study because the results of this study provide a deep understanding of language impairments that involve semantics and pragmatics problems of Alzheimer's disease. In addition, the findings provide new insights for the public, students, and readers interested in psycholinguistics, particularly about Alzheimer. This study is also beneficial for caregivers who are treating Alzheimer's patients. The development of this research in the future is broader than what can be a valuable insight for society.

B. Research Method

This study employed a descriptive qualitative approach since it focuses on analyzing the utterances produced by Alzheimer's character. Ary (in Nurunnisa'i, 2015) stated that the descriptive method was designed to obtain information about the current status of the phenomenon. The descriptive method means that researchers describe, explain, and analyze the data through speech and phenomena (Evelyn in Hasanah, 2020). The theory used by the researcher is Kempler's theory (1991), which discusses the language impairment of Alzheimer's disease from a semantic and pragmatic perspective. The data is in the form of utterances produced by Anthony –the

Alzheimer's character in *The Father* movie. The utterances produced by Anthony denote language impairments produced by Alzheimer's disease. The movie had its world premiere at the Sundance Film Festival on 27 January 2020.

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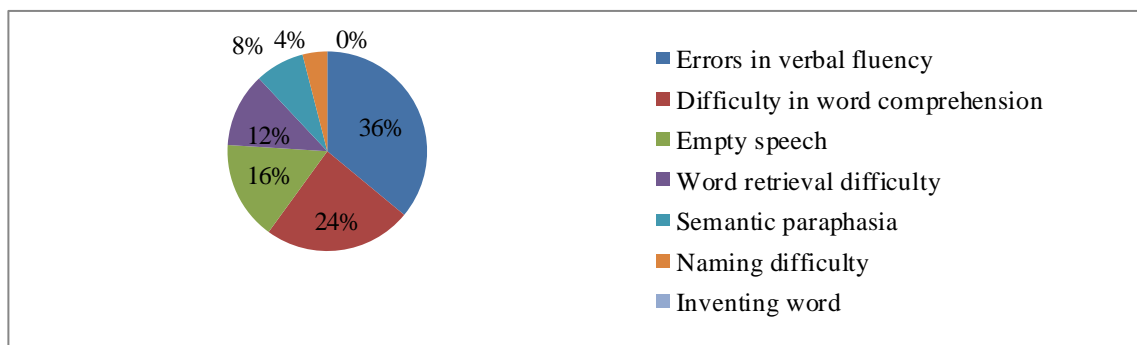
In collecting the data, researchers go through several steps. The first stage is downloading *The Father* movie and observing the conversation. Second is identifying Anthony's dialogues related to the focus of the study. Finally, the researchers collected and displayed all the data to proceed to the data analysis stage. After collecting the data, the researchers analyzed the language impairments produced by Anthony as the Alzheimer's character in *The Father* movie. It starts with classifying the language impairments in semantic and pragmatic views. This classification is under the theory conducted in this research, which is the theory of Kempler (1991) & Savundranayagam et al. (2005). This theory took a semantic and pragmatic view on language impairments of Alzheimer's disease. The impairments include word retrieval, naming, difficulty with word comprehension, semantic paraphasia, empty speech, inventing words, and errors in verbal fluency (semantic aspects). Meanwhile, the pragmatic aspects include talking excessively at inappropriate times, speaking too loudly, repeating ideas, and deviating from the topic. After classifying the data, the researcher wrote the result of the data analysis to answer the research questions. Finally, the researchers drew a conclusion.

C. Research Finding and Discussion

This study found twenty-nine utterances data produced by Anthony, the main character with Alzheimer's disease in *The Father* movie that after the data reduction becomes fourteen data. The analysis below covers the language impairment in semantic and pragmatic aspects

1. Language Impairments of Alzheimer's disease in Semantic Aspect

From the data analysis, it is found that Anthony has some types of semantic impairments. The finding shows six out of seven types of semantic impairments from

- Errors in verbal fluency
- Difficulty in word comprehension
- Empty speech
- Word retrieval difficulty
- Semantic paraphasia
- Naming difficulty
- Inventing word

the theory of Savundranayagam et al. (2005) as summarized in Figure 1.

Figure 1. Semantic impairments produced by Anthony

a. Errors in Verbal Fluency

Errors in verbal fluency are one of the most dominant types of semantic impairment produced by Anthony. Persons with errors in verbal fluency usually have difficulty producing sentences. They know what they will say, but they have difficulty pronouncing it. Datum 1 below is an example showing the errors in verbal fluency in Anthony's utterances:

Anthony   : *"I... I... suspect she was um... a... she..."*

Anne   : "she was what?"

Anthony   : "she was stealing from me"

This dialogue occurs when Anthony accuses Angela (the caregiver) of stealing his watch. Anthony looks hesitant when revealing that Angela stole his watch. It can be seen from his stuttering expression. Even from body movements, Anthony looks uncomfortable. From the context, the utterance above is categorized as an error in verbal fluency occurred when a person loses cognitive functions that facilitate the

retrieval of information from memory. It is indicated by using the expressions *um…*, and *a…* as well as stammering words.

b. Difficulty in Word Comprehension

Anthony shows difficulty in understanding language. The main area of the brain responsible for language comprehension is Wernicke's area, usually found in the left hemisphere. Datum 10 below shows an example of the difficulty in word comprehension of Anthony's utterances:

Anthony	: "I love her"
Anne	: "nice. We should get you dress up before she comes"
Anthony	: *"who?"*
Anne	: "Laura, your new carers, the one that you like"

This dialogue occurs when Anthony says that he likes Laura. After that, Anne asked Anthony to prepare because *"she"* would soon arrive. However, Anthony seemed confused by Anne's meaning of *"she"*. Difficulty with word comprehension means someone who struggles to understand the word(s). There are signs of difficulty understanding words: confusion about the meaning of words and sentences; cover details; difficulty distinguishing important information from small details. Anne had previously informed him that they would have guests, and Anthony had previously insisted that he had remembered because Anne had informed him many times. However, when Anne asked Anthony to get ready because *"she"* was coming soon, Anthony forgot and seemed to have not been told beforehand.

c. Empty Speech

Anthony also produced empty speech that showed eloquent articulation without sufficient meaningful information. In semantic and syntactical point of view, the sentences produced are appropriate, but the sentence's meaning seems unclear and not specific. Datum 14 below shows an example of the empty speech in Anthony's utterances:

Anthony	: *"I'm, I feel as if I'm losing all my leaves"*
Woman	: "your leaves?"

Anthony : "yeah" (crying)

Woman : "What do you mean?"

Anthony : *"the branches and the wind and the rain… I don't know what's happening anymore. …. If not I… don't know if I'll be ready to, uh… to…"* (crying)

This dialogue occurs when Anthony suddenly cries after talking about his mommy. Then he started to talk about him as if he had lost his leaves. Anthony's mood was ruined as soon as he talked about his mommy. Then, his words started to ramble when suddenly he talked about leaves, tree branches, and the like, which made the woman – the nurse, ask what Anthony meant. From the context, it is categorized as empty speech. Empty speech is when someone speaks fluently, but the information provided is not meaningful enough. Even after Anthony explained what he meant, the utterance jumped up and down and was not specific.

d. Word Retrieval Difficulty

Anthony also produced word retrieval difficulty in connecting characters or names of people, locations, dates, events, or other specific facts. Datum 2 below shows an example of the word retrieval difficulty in Anthony's utterances:

Anthony : *"you have to admit that since umm…"*

Anne : "James?"

Anthony : "James"

This dialogue begins when Anne, who never stops persuading her father – Anthony, to accept a caregiver living with him because later on, Anne will not be able to care for and supervise Anthony anymore because she will move to Paris. When Anne said she had met someone to be her life partner and had to move to Paris, Anthony looked confused and froze. Anthony had a hard time connecting characters or people's names. From the context, it is categorized as word retrieval difficulty. Word retrieval difficulty is when a person knows and understands a particular word but has difficulty retrieving and using it in speech. It can be seen in Anthony's words that there is a pause in the form of *um…* when he was about to mention the name of Anne's ex-husband.

e.   Semantic Paraphasia

Anthony also produced semantic paraphasia, a condition in which patients with Alzheimer's disease choose the wrong words to produce their speech. It is a symptom of commission because it is a wrong word substituted for an intended or target word. Usually, the replaced word (the substitution word) still relates to the target word. Datum 13 below is an example that shows the semantic paraphasia in Anthony's utterances:

> Anthony   : *"she had, she, uh… she had such great core. I can see her features now. She was… I hope she'll uh… come and see me sometime. Do you think? Mommy, you were saying she might come periodically at the weekend"*
>
> Woman   : "your daughter"

This dialogue occurs when Anthony suddenly talks about his mother. He also said that his *"mommy"* would sometimes visit him on the weekends. Then the woman corrected the word *"mommy"* to *"daughter"* because the one who visited Anthony on the weekend was his daughter, Anne. Semantic paraphasia is when a person with Alzheimer's disease mispronounces the name of an object, but the mispronunciation still has an associative connection. In addition, *"mommy"* and *"daughter"* are semantically related; they are part of the family.

f.   Naming difficulty

Anthony also produced naming difficulty when he failed to pick up words and could not express the words he wanted to say (especially nouns and verbs). Individuals with naming difficulty can generally describe an object in detail and may even use hand gestures to show how the object is used but cannot find the right words to name the object. Patients with naming difficulties have relatively well-maintained fluency, repetition, comprehension, and grammar. The cause of naming difficulty is the damage (lesions) to the brain's temporal lobe. Datum 3 below is an example that shows the naming difficulty in Anthony's utterances:

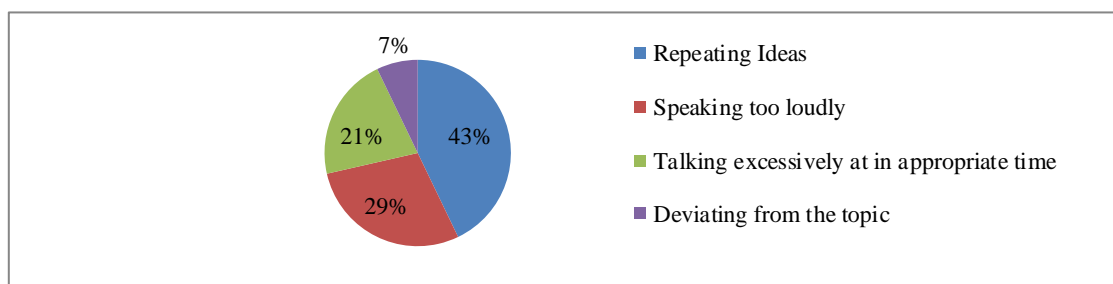> Anthony   : *"it's because of that woman… that nurse…"*
>
> The man   : "Laura?"
>
> Anthony   : "I don't remember her name"

In this context, naming difficulty is a linguistic symptom of Alzheimer's disease, associated with difficulty generating names for objects. It can be seen in the conversation that there is a pause in Anthony's words. In addition, Anthony also generalizes Laura's name with her profession.

2. Language Impairments of Alzheimer's Disease in Pragmatic Aspect

Pragmatic impairments refer to adapting language to a particular situation. For example, pragmatic deficits can result in a person with Alzheimer's disease having language impairments such as speaking too loudly and in more than appropriate times, repeating several times, or digressing from the topic (Lindsay, et al., 2021). The data analysis shows that Anthony has some types of pragmatic impairments, which can be seen from Anthony's utterances. Among the data findings that have been analyzed in the appendixes, the researchers found all types of pragmatic impairments from the theory of Savundranayagam et al. (2005). The summary of the findings is presented in Figure 2.

Figure 2. Pragmatic impairments produced by Anthony.

a. Repeating Ideas

Repeating ideas is one of Anthony's most dominant types of pragmatic impairment. It is a condition in which people with Alzheimer's disease repeat their speech. The repetition can be in words, statements, or questions more than once. Datum 9 below is an example that shows the repeating ideas in Anthony's utterances:

Anne   : "You've probably put it in your cupboard. In your hiding place"

Anthony   : *"What cupboard? I don't know what you're talking about. I really don't know, Anne. What cupboard? Mm? There's no cupboard. There's no cupboard. Is there?"*

This dialogue occurs when Anthony asks where his watch is. Then, Anne mentioned Anthony's hiding place. Because Anthony's watch is usually hidden there when he admits his watch is missing. When Anne leaked about her hiding place, Anthony panicked and feared that Paul had heard the word *'cupboard'.* From the context, it is categorized as repeating ideas.

b. Speaking too Loudly

Speaking too loudly was also produced by Anthony. Generally, people with Alzheimer's disease raise their voices because they feel angry or aggressive. An aggressive mood in people with Alzheimer's disease cannot be predicted when it appears; the mood can appear suddenly without cause. It occurs because a lesion in the frontal lobe regulates emotions and self-control. Datum 7 below is an example that shows the repeating ideas in Anthony's utterances.

Anthony : *"Did you not hand over a crow to anybody? The crow!"*

Woman : "What crow? What are you talking about, Dad?"

In this case, Anthony was frustrated because he remembered the woman had handed the crow to the man. Instead of understanding, the woman looks confused by what Anthony means because she feels she has never given a crow to anyone. Then Anthony felt frustrated because the previous scene felt real. It was this frustration that made Anthony finally raises his voice. Speaking too loudly occurs when Anthony feels annoyed and frustrated because his communication with the woman did not work. He was sure of his memory of the woman giving the man the chicken in the foyer, but the woman did not feel she had done that.

c. Talking Excessively at Inappropriate Times

Anthony talked a lot more than usual; he kept babbling regardless of whether his words elicited a response. Usually, he spoke at a much faster rate, maybe even at a higher volume. Datum 6 below is an example that shows the repeating ideas in Anthony's utterances:

Anthony: *"Take a great look at me. I can still carry out on my own. Don't you think? I mean, I'm not completely umm..."* (laughing) *[6.1]* (The man still reading the newspaper.)

Anthony: *"you agree? Of course you agree. But umm... her? uh... I don't know where this uh... silly obsession comes from. uh... she's always been that way. .... You know, she's not very umm... not very brilliant. She gets that from her mom"* [6.2]

Anthony begins to express his complaints about Anne to a man who claims to be Paul, Anne's husband (a nurse at Anthony's nursing home). Anthony was annoyed that Anne kept forcing him to have a caregiver even though he felt he could manage his own life. It was his anger that caused Anthony to talk too much. From the context, it is categorized as talking excessively at inappropriate time. Talking excessively at an inappropriate time is a type of speech that involves rapid speech that is often difficult to stop. It can be seen from the conversation that Anthony spoke quickly and uncontrollably.

d. Deviating from the Topic

Anthony also produced deviation from the topic, which is a condition in which a person with Alzheimer's disease leaves the main subject under discussion. For example, Indah (2017) stated that changes in the cortical cell structure that result in lesions in the temporal and frontal lobes affect the language skills of Alzheimer's disease. The resulting sentences are not cohesive, and the topic is unclear. Deviating from the topic in Anthony's speech can be seen in datum 8 below.

Anne : "… and we went to meet the doctor"

Anthony : *"has anyone seen my watch? I seem to have lost it"*
(Datum 8)

Anthony seems to have strayed from the topic from a visit to the doctor to his missing watch. From the context, it is categorized as deviating from the topic. Deviating from the topic is a condition where Alzheimer's patients find it challenging to receive new information, so they are off-topic. When Anne explained their agenda to visit the doctor, Anthony's gaze seemed unfocused. In addition, she had also informed him that

Laura would visit them that day. Yet, he only gave a muted response like mumbling, even with his eyes focused on Paul's watch.

D. Conclusion

The semantic impairments found in this study were word retrieval difficulty, naming difficulty, difficulty with word comprehension, semantic paraphasia, empty speech, inventing words, and errors in verbal fluency. The most frequent type of semantic impairment is errors in verbal fluency. For example, Anthony as the character representing the person with Alzheimer's disease produced a lot of *umm... uh... a...* and his repeated stuttering, indicating his verbal fluency is impaired.

The types of pragmatic impairments found are talking excessively at inappropriate times, speaking too loudly, repeating ideas, and deviating from the topic. The most dominant type of pragmatic impairment is repeating ideas. Anthony appears to repeat words, statements, and questions.

It is suggested that future studies find the type of semantic impairments, for instance, inventing words of people with Alzheimer's disease. Future researchers can also use other theories related to the semantic impairments using different objects or contexts. Regarding pragmatic impairments, the researcher hopes that anyone who interacts with patients with Alzheimer's disease can anticipate that Alzheimer's disease patients may repeat words, speak too much, or digress the conversation considering they have brain damage. In addition, people with Alzheimer's disease often suddenly raise their voices because they experience mood swings due to frontal lesions. So, people who interact with patients with Alzheimer's disease are expected to focus on emotions, not behavior. Furthermore, future researchers can also use other theories related to the pragmatic impairments of people with Alzheimer's disease.

The findings of this study have important implications for healthcare professionals and caregivers who work with people with Alzheimer's disease. By understanding the specific language impairments experienced by people with this condition, they can develop effective communication strategies that take into account the person's individual needs and abilities. For example, caregivers may need to speak

slowly and use simple language, provide visual aids to support understanding and be patient and flexible in their conversations with people with Alzheimer's disease.

Overall, this study highlights the importance of recognizing and addressing the language impairments experienced by people with Alzheimer's disease, as these can significantly impact their quality of life and ability to interact with others. By improving our understanding of these impairments and developing effective communication strategies, we can help to support people with Alzheimer's disease and enhance their well-being and social connections.

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