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### AN ANALYSIS OF SENTENCE TYPES PRODUCTION AND SPEECH DISORDERS CHARACTERISTICS IN WERNICKE'S APHASIA SUFFERER

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**Abstract:** Wernicke's aphasia is a speech disorder with speech that is quite fluent but has a meaning that does not make sense. Many utterances are just the contents of the sufferer's thoughts. This analysis focuses on the characteristics of sentence production and speech disorders in individuals with Wernicke's aphasia. Individuals with Wernicke's aphasia suffer from a language disorder that affects their ability to communicate effectively. Their speech is typically fluent but nonsensical, and they may struggle to find the right words or understand what is being said to them. They may also make errors in their speech and be unaware of these mistakes, which can make communication even more challenging. Additionally, their sentence structure, grammar, and syntax can be compromised, leading to structurally deficient sentences. Limited use of functional words, the presence of neologisms, and perseveration contribute to the incoherence of their speech. Understanding these characteristics is crucial for developing targeted interventions to enhance communication for individuals with Wernicke's aphasia. The results of this research found that there are 7 types of sentence patterns, 5 types of sentences based on their function and structure, and 4 characteristics of speech disorders that appear in the utterances expressed by Byron.

**Keywords:** sentence production, speech disorders characteristics, wernicke's aphasia

## INTRODUCTION

Research on aphasia has been conducted for decades and continues today. Those researches cover various aspects, such as causes, symptoms, diagnosis, and treatment of aphasi (Tippett et al., 2014). According to Code (2021), aphasia is the term used by most professionals to describe language impairments that affect the expression and comprehension of language in any form, such as speech, writing, or sign language. It is caused by damage to the brain that is acquired rather than present at birth. In this regard, the topic of aphasia is part of the psycholinguistic studies. Supported by the statement of

Yuliana et al., (2021), psycholinguistics can help solve health and neurological problems related to language disorders caused by brain issues.

Aphasia is divided into seven types, they are Broca's aphasia, global aphasia, transcortical motor aphasia, Wernicke's aphasia, conduction aphasia, anomic aphasia, and transcortical sensory aphasia (Schulman, 2020). Based on these types, the researcher chose Wernicke's type of aphasia because is described as having problems in understanding words that are heard or read, as well as difficulties in producing meaningful sentences (Cherry, 2023). People with Wernicke's aphasia generally speak fluently, but do not make sense and are difficult for the person they are talking to understand. Sufferers also often use words that have no meaning or are not relevant to the context of the conversation (National Aphasia Association, 2023).

In this case, the researcher will conduct research on sentence production and the characteristics of speech disorders in people with Wernicke's aphasia. This research can explore how damage to the brain affects a person's ability to produce meaningful sentences and how the characteristics of speech disorders in people with Wernicke's aphasia vary depending on the part of the brain that is damaged. At the smallest scope, the results of this research can enrich research sources regarding the symptoms of Wernicke's aphasia, specifically on sentence production and the characteristics of speech disorders in sufferers. The results of this research can also help in the development of more effective therapy and intervention methods to help Wernicke's aphasia sufferers communicate with other people.

There is a previous study related to sentence production written by Febriani et al., (2013) entitled "Sentences for Aphasia Sufferer". This research aims to explain the kinds and types of sentences produced by people with aphasia. The difference with previous research lies in the diagnosis of the type of aphasia, which is not stated and specified as in the current research which specifically targets Wernicke's aphasia sufferer. Another research is regarding speech disorder characteristics in Wernicke's aphasia by Damayanti (2019). Previous research explained the variations or symptoms of speech disorders in children with Wernicke's aphasia. However, the current research aims to fill the gap by providing the perspective of adult people with Wernicke's aphasia. Based on the statement above, the researcher conducted this research to find out how sentences are produced by Wernicke's aphasia sufferer and what characteristics of speech disorders the sufferer experience.

## **LITERATURE REVIEW**

### **Definition of Wernicke's Aphasia**

Wernicke's aphasia is referred to as fluent aphasia or receptive aphasia. Based on theory from the National Aphasia Association (2023), in Wernicke's aphasia, the ability to grasp the meaning of spoken words and sentences is impaired, while the ease of producing connected speech is not very affected. Additionally, it is said by Rutten (2017) that Wernicke's aphasia is related to damage to Wernicke's area, namely the language center responsible for producing meaning. Interpretation of words during comprehension and word selection in producing speech. Wernicke's aphasia sufferers only speak their thoughts fluently.

Typically, damage to the left side of the brain is the root cause of Wernicke's Aphasia, with the most frequent culprit being a cerebrovascular accident (CVA) that impacts the left hemisphere (Fridriksson et al., 2018). Additionally, other factors that can lead to Wernicke's Aphasia include brain injuries (such as concussions, non-traumatic

acquired brain injury, or traumatic brain injury), central nervous system infections, cerebral tumors, and degenerative brain conditions (Binder, 2017).

So, it can be concluded that the definition of Wernicke's aphasia is a condition of language impairment in which the ability to speak fluently but not understand what the person speaking is saying so that generally sufferers only express the contents of their thoughts without any connection to the context being discussed.

### **Sentence Types Production**

According to Dell & Chang (2014), while there are numerous connectionist models for acquired word production deficits, few address aphasic sentence production. Sentence production involves several stages, including conceptual preparation, formulation (grammatical, morpho-phonological, and phonetic encoding), and articulatory processes (Thompson et al., 2015). Conceptual preparation is the process of creating a mental blueprint for constructing a sentence. It involves organizing thoughts and deciding what content to convey. In formulation, the speaker encodes it into linguistic structures. Articulatory processes involve coordinating muscle movements, adjusting airflow, and shaping the vocal tract to create the desired sounds.

In the realm of language research, the study of sentence types holds significant importance. Scholars have delved into various sentence structures, examining their syntactic and semantic properties (Toan & Nhan, 2023). There are four main types of sentences in English and each serves a distinct purpose, they are declarative sentences, interrogative sentences, imperative sentences, and exclamatory sentences (Jiang & Ren, 2023). According to Burton-Roberts (2021), there are also three types of sentences based on structure, which are simple sentences, complex sentences, and compound sentences.

#### ***Declarative Sentences***

Based on the theory by Surayya (2023) a declarative sentence is a sentence that makes a statement or provides information. Declarative sentences are used to convey information directly and are the most common type of sentence in the English language. Declarative sentences require a subject and a predicate, which consists of a verb or action. They can be simple or complex, depending on the number of independent clauses they contain. A simple declarative sentence contains only one independent clause and has a subject and a predicate. For example, "The cat sat on the mat" is a simple declarative sentence.

A complex declarative sentence contains one independent clause and one or more subordinate clauses, which are dependent on the independent clause to make sense. For example, "I went to the store after I finished my homework" is a complex declarative sentence that contains an independent clause ("I went to the store") and a subordinate clause ("after I finished my homework").

#### ***Interrogative Sentences***

An interrogative sentence is a sentence that asks a question. Interrogative sentences are used to elicit information, express curiosity, and engage in conversation. Interrogative sentences can be formed in different ways (Khan, 2023). One way is to use an interrogative word such as "what," "where," "when," "why," or "how" at the beginning of the sentence. For example, "What is your name?" is an interrogative sentence that uses the interrogative word "what."

Another way to form an interrogative sentence is to invert the subject and auxiliary verb. For example, "Are you coming to the party?" is an interrogative sentence that uses inversion. Interrogative sentences can also be formed by adding a question mark at the

end of a sentence. However, this method is less common and usually reserved for informal writing or speech.

### ***Imperative Sentences***

According to Potsdam and Edmiston (2015), an imperative sentence is a type of sentence that gives instructions or advice and expresses a command, an order, a direction, or a request. It is also known as a jussive or a directive. Depending on its delivery, an imperative sentence may end with an exclamation mark or a period. Imperative sentences are usually simple and short, but they can also be long and complex, depending on the context. They serve various purposes in literature such as sharing a wish or request, for example, "Have a good day!" or offering an invitation like "Please join me for dinner tonight". They can also be used to give commands or share requests, such as "Stop beating the dog!" or provide guidance like "Let him cool down, and then ask about the incident."

### ***Exclamatory Sentences***

Exclamatory sentences, also known as exclamations, are powerful expressions that convey intense emotions or excitement. These sentences end with an exclamation mark (!), emphasizing their impact. In literature, they serve various purposes, from expressing joy and surprise to frustration and sorrow. For instance, consider the famous line from Mary Shelley's *Frankenstein*: "It's alive! It's alive!" uttered by Dr. Frankenstein, capturing both awe and fear. Exclamatory sentences add dynamism and urgency to narratives, making them memorable and evoking strong reactions from readers (Nordquist, 2023).

### ***Simple Sentences***

According to Gina (2023), a simple sentence is a sentence that contains only one independent clause, which means it has a subject and a predicate and can stand alone as a complete thought. Simple sentences are the most basic type of sentence and serve as the foundation for more complex sentences. In terms of sentence type production, simple sentences can be created in different ways. The most basic way is to use the subject-verb-object (SVO) structure, which consists of a subject, a verb, and an object. For example, "I ate an apple" is a simple sentence that follows the SVO structure. Simple sentences can also be created using other structures, such as subject-verb (SV) and verb-subject-object (VSO). Modifiers such as adjectives, adverbs, and prepositional phrases can be added to simple sentences to provide more detail.

### ***Complex Sentences***

Complex sentences are crucial in literary writing. They are made up of an independent clause, which can stand alone as a complete sentence, and one or more dependent clauses that cannot stand alone (Koçak, 2019). These dependent clauses generally begin with subordinating conjunctions such as "because," "although," or "when." Complex sentences enable writers to communicate nuanced ideas, relationships, and emotions. For example, in Mary Shelley's *Frankenstein*, the phrase "It's alive! It's alive!" utilizes an exclamatory complex sentence, evoking both awe and fear and showcasing the power of such sentences in literature.

### ***Compound Sentences***

A compound sentence is a sentence that contains two or more independent clauses, which are complete sentences that can stand alone (Essberger, 2023). These clauses are usually joined by a coordinating conjunction such as "and," "but," or "or". Compound sentences are used to connect related ideas and to create a faster pace of writing. To create a compound sentence, combine two simple sentences using a comma and a coordinating conjunction. For example, "I went to the store, and I bought some milk" is a compound sentence that combines two independent clauses with the coordinating conjunction

“and.” Alternatively, you can use a semicolon to join two independent clauses without a coordinating conjunction. For example, “I went to the store; I bought some milk” is also a compound sentence.

### **Characteristics of Speech Disorders**

Wernicke's aphasia is a brain condition that affects a person's ability to understand the words they hear or read, as well as difficulty producing meaningful sentences. The following are some of the characteristics of Wernicke's aphasia according to WebMD Editorial Contributors (2023), including saying a lot of words that cannot be understood, not being able to understand the meaning of words, being able to speak well in long sentences but not making sense, using the wrong words or words that don't make sense, and can't understand written words. Understanding the characteristics of speech disorders is crucial for accurate diagnosis and the development of tailored intervention strategies. According to Cohen & Hula (2020), speech-language pathologists play a key role in assessing and treating individuals with speech disorders, working towards improving their communication skills and overall quality of life. While the characteristics of speech disorders are observable features and manifestations, various theories help explain the underlying causes and mechanisms behind these disorders. These theories contribute to our understanding of how speech production, language processing, and motor control may be disrupted.

### **METHOD**

This research used qualitative descriptive methods in formulating and discussing research questions. Supported by the theory from Miles & Huberman (1994) there are four techniques in data analysis, they are data collection, reduction, presentation, and conclusion. At the data collection stage, analytical methods are used to observe and analyze the utterances spoken by the research subject. This research used secondary data analysis because the data was taken from a video recording of a conversation between a Wernicke's aphasia sufferer named Byron Peterson and Megan Sutton, one of the co-founders of Tactus Therapy (Tactustherapy, 2015).

The utterances in the conversation were transcribed and analyzed using qualitative data processing. Data processing is an informal method in the form of information or a researcher's opinion accompanied by supporting theories. The only participant selected was intended so the data obtained was in-depth. The selection of participants for this single case study was based on a purposive sampling technique with certain considerations. Byron Peterson's video was chosen because the research topic with existing data was quite relevant and valid. Apart from that, the research subject of this data is unique because it gave rise to many viewers and various comments regarding the statements made by Byron.

### **FINDINGS AND DISCUSSION**

In this section, the researcher presents the findings and discussion of this research by analyzing the speech of Wernicke's aphasia sufferer. As the research questions, (1) How are sentences produced by Wernicke's aphasia sufferer? and (2) what are the characteristics of speech disorders experienced by Wernicke's aphasia sufferer?

### Sentences Production Produced by Wernicke's Aphasia Sufferer

Sentence production can be seen from several sides, as in this research, sentence production is seen from the kind of sentence based on its function and based on the sentence pattern. The following is an analysis table for the types and patterns of sentences spoken by Byron.

**Table 1. Sentence production analysis**

Dialogues	Pattern of Sentence	Type of Sentence
I'm happy.	S-V-C	Simple/Declarative Sentence
Are you pretty?	S-C	Interrogative Sentence
You look good.	S-V-C	Simple/Declarative Sentence
We stayed with the water over here at the moment and talked with the people for them over there.	S-V-O-A, V-O-A	Compound Sentence
They're diving for them at the moment, but they'll save at the moment held water very soon, for him, with luck.	S-V-O-A, S-V-O-A	Compound Sentence
We will sort right here and they'll save their hands right there for them.	S-V-A, S-V-O-A	Compound Sentence
Uhh.. Right at the moment they don't show a darn thing. Ha ha!	S-V-O	Simple/Declarative Sentence
I'd like my change for me and change hands for me.	S-V-O, S-V-O	Compound Sentence
It would happy.	S-V-C	Simple/Declarative Sentence
I would talk with Donna sometimes.	S-V-O-A	Simple/Declarative Sentence
We're out with them.	S-V-A	Simple/Declarative Sentence
Other people are working with them and them.	S-V-O-O	Simple/Declarative Sentence
I'm very happy with them.	S-V-C-A	Simple/Declarative Sentence
This girl with verly good.	S-V-C	Simple/Declarative Sentence
And happy and I play golf and hit up trees.	S-V-O, V-O	Compound Sentence
We play out with the hands.	S-V-O	Simple/Declarative Sentence
We save a lot of hands on hold for peoples.	S-V-O-A	Simple/Declarative Sentence
I don't know what you get, but I talk with a lot of hand for him.	S-V-O S-V-O-A	Compound Sentence
Am I talk of anymore to saying.	S-V-A-A	Interrogative Sentence
Thank you very much, I appreciate it, and I hope the world lasts for you.	S-V-O-A, S-V-O, S-V-O-A	Compound Sentence
Have a good day!	S-V-O	imperative Sentence

Note: S: Subject, V: Verb, O: Object, C: Complement, A: Adverbial

The table provided above shows various formulas for each dialogue sentence along with their respective sentence types. These formulas and sentence types are the outcome of sentence production in this study, categorized based on the theories discussed in the literature review

section. The data obtained from the table on sentence production was utilized to analyze the characteristics of the speech disorder experienced by Byron. Further details are explained in the following sections.

### ***Pattern of Sentences***

Wernicke's aphasia sufferer in this study was generally able to produce sentences with the patterns S-C, S-V-O, S-V-C, S-V-A, S-V-O-A, S-V-O-O, and S-V-A-A. Sufferer of Wernicke's aphasia tend to use sentences with a Subject (S) and Verb (V) pattern although the pattern is not a complete sentence (Pallickal & Hema, 2020). The sentences spoken were quite varied, Byron not only said short sentences in the form of S-V-O or something similar, but also more complete sentences. It can be seen from the types of sentences analyzed.

The researcher found sentences with the S-C pattern produced by the sufferer, for example, "Are you pretty?" The only S-C pattern also indicates that the only dialogue is a question sentence. The subject filler element is a noun starting with to be as an interrogative sentence, and the predicate element is the word compliment. The purpose of the sentence spoken is to ask whether things are okay or not.

Sentences with the S-V-O pattern are the ones that researcher encounter most, with one example being, "We play out with the hands." The filler element for the subject is a plural pronoun. The predicate filler element is a verb and the object filler element is a noun. The meaning of the sentence spoken is that we are referring to Byron and the people around him who at that moment were playing with their hands.

Furthermore, the S-V-C pattern was also found, for example, "It would be happy." The filler element for the subject is a noun (pronoun). The predicate filler element is a verb. The filler elements in the description are adjectives. The purpose of the sentence above is to inform you that the thing referred to will make you happy. This is different from S-V-A, for example, "We're out with them." Where the elements that fill in the information are nouns. This means that those of us who are referred to do activities together.

The example chosen for S-V-O-A is "I would talk with Donna sometimes." The filler element for the subject is the first-person pronoun. The predicate filler element is a verb. The filler element for the object is a noun. Lastly, the adverbial filler element is frequency. The meaning of the sentence above is that it is clearly stated that sometimes Byron chats with a woman named Donna.

The S-V-O-O pattern was found, an example of which is "Other people are working with them and them." The filler element for the subject is a noun. The predicate filler element is a verb. The filler elements for the object are the same two nouns. The meaning of this sentence is a little unclear, as the words of the sufferer are difficult to understand. This is different from S-V-A-A which ends with two adverbials, for example, "Am I talking of any more to say." Likewise, with this sentence, it is quite ambiguous to interpret.

### ***Type of Sentences***

Based on the research results in the table above, Wernicke's aphasia sufferer in this study was able to produce various types of sentences, they are simple sentences, declarative sentences, interrogative sentences, a sentence of imperative, and compound sentences.

The researcher found that simple sentences also contain declarative elements, so that in one sentence they can be categorized directly into two types at once, namely simple declarative sentences. In that type, Byron tries to convey information to Megan, that the people he tells did not show anything at that time. It is supported by Sari & Ariyanti (2022)

who explain that simple declarative sentences are sentences that contain news intonation and generally contain the meaning of stating and giving something.

Many simple or declarative sentences were uttered in the conversation, for example, "You look good", which means that Byron said that Megan looks fine in his eyes. The reason why it is called a simple or declarative sentence is because it only consists of one independent clause and consists of information. This is in line with the theory of Gina (2023) and Surayya (2023) which states that a simple sentence is a sentence that contains one independent clause, and a declarative sentence is a sentence that provides information.

The sufferer of Wernicke's aphasia also stated the form of an interrogative sentence, such as "Are you pretty?" which shows the condition (pretty=good). This is supported by the opinion of Farkas & Roelofsen (2017) that interrogative sentences contain the basic meaning of the question.

Based on research data, the current research subjects also produced a sentence of exclamatory, like "Have a good day!". This sentence contains a command or hope from the speaker to the person he is speaking to have a good day. This sentence is also called a command sentence because it contains the meaning of an order. In this regard, Potsdam & Edmiston (2015) state that imperative sentences are sentences that have the basic meaning of commanding.

The last type of sentence spoken by Byron is the compound sentence type. For example, "We will sort right here, and they will save their hands right there for them", which contains two independent clauses. It proved that compound sentences are sentences that consist of several clauses (Essberger, 2023).

### **The Characteristics of Speech Disorder Experienced by Wernicke's Aphasia Sufferer**

Based on research results, Wernicke's aphasia sufferer in conversation shows several characteristics of speech disorders. The following are the characteristics that emerge including:

#### ***Saying a Lot of Words that Cannot be Understood***

Based on research, people with aphasia cannot understand their speech, not understood or expressed clearly. For example:

*Megan: "So we're on a cruise and we're about to get to Juneau..."*

*Byron: "We will sort right here and they'll save their hands right there for them."*

It can be seen from the conversation above that Wernicke's aphasia sufferer's utterances do not have a context related to Megan's question. Byron wasn't able to listen well, he only answered things that were on his mind that the person he was talking to didn't understand. This is in line with Wernicke's theory that damage to the human brain in the Wernicke area results in the communication system between sufferers being disrupted.

#### ***Not Able to Understand the Meaning of Words***

In people with Wernicke's aphasia, the ability to understand spoken words and sentences is impaired, but the ease of producing coherent speech is essentially unaffected.

*Megan: "And what were we just doing with the iPad?"*

*Byron: "Uhh.. right at the moment they don't show a darn thing. Ha ha!"*

Apart from the listeners not being able to understand his words, far from it, it can also be concluded early that the sufferer of Wernicke's aphasia does not understand the words of the person he is talking to. Therefore, he answered without context. Like the example above where the two people are not speaking in the same direction. Where

Megan asked about the iPad, while Byron talked about other things that were also incomprehensible.

#### ***Able to Speak Well in Long Sentences but Not Making Sense***

Difficulty speaking and understanding words is the hallmark of aphasia, a language disorder.

Megan: *"With the iPad, that were we doing? Like here?"*

Byron: *"I'd like my change for me and change hands for me. It would happy. I would talk with Donna sometimes. We're out with them. Other people are working with them and them. I'm very happy with them. This girl with verly good. And happy and I play golf and hit up trees. We play out with the hands. We save a lot of hands on hold for peoples, for us. Other hands. I don't know what you get, but I talk with a lot of hand for him. Sometime. Am I talk of anymore to saying."*

In line with the previous characteristics of speech disorders, this one is more related to the duration or number of utterances expressed. As is known, Wernicke's Aphasia speaks quite fluently, but they don't speak in context or that the person they are talking to can understand. It can be seen from the results of the conversation above that Megan, who repeated the previous question, responded to Byron with various sentences that were still not in the actual context. Byron tells the story in a different context, as it flashes through his mind like a collection of fragments. He tells about a woman named Donna, her activities playing and chatting, and others. Even what he said seemed inconsistent with each other.

#### ***Using the Wrong Words***

Damage to the area of the brain involved in language production and comprehension is the cause of having trouble speaking, and which unable to come up with the perfect word or words.

Byron: *"This girl with verly good."*

It cannot be denied that this language and speaking disorder often involves errors in pronunciation. As is the case in the statement above where Byron utters a slight error in the word "verly", it is possible that the meaning is "very". Even so, this sentence still doesn't make sense so there are multiple interpretations of this statement, as well as others.

It can be concluded from all of the above that Byron cannot understand the meaning conveyed by other people, nor his speech can be understood, apart from that his words do not fit the context, and there are errors in the choice or pronunciation of words. From the production of sentences that have been analyzed, it can be seen that sufferer of Wernicke's aphasia are only limited to certain patterns and certain types of sentences that do not have a clear meaning in them. Therefore, there is a need for special treatment and further healing for Byron. However, those who are more capable and knowledgeable to provide treatment are specialist doctors.

## **CONCLUSION**

From the research findings and discussions that have been carried out, several important points can be drawn as follows. First, the sentence patterns produced by Wernicke's aphasia sufferer in this study were S-C, S-V-O, S-V-C, S-V-A, S-V-O-A, S-V-O-O, and S-V-A-A. The kinds of sentences spoken include simple sentences, declarative sentences, compound sentences, interrogative sentences, and imperative sentences. Second, the characteristics of speech disorders that can be seen from the current research data are 4, that cannot understand the words of the person they are talking to, the speech

made by Wernicke aphasia sufferer cannot be understood, their speech also does not make sense even in the form of long speech, and there are errors say.

In this regard, this research finally shows that people with Wernicke's aphasia tend to produce sentences that are incoherent and difficult to understand. Sufferers also tend to have difficulty understanding spoken language and expressing themselves verbally. This research also shows that people with Wernicke's aphasia often have difficulty processing auditory information and have problems distinguishing between different sounds.

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