

CHAPTER I

INTRODUCTION

1.1. Research Background

Psycholinguistics studies how the human mind processes and produces language. It combines psychology and linguistics to explain how people understand, organize, and express ideas through speech (Megah, 2023). Psychology focuses on human behavior and mental processes (Zimbardo, 2012), while linguistics studies the structure and system of language (Akmajian, 2001). In psycholinguistics, language production is viewed as a cognitive process that transforms thoughts into spoken forms. This process can be observed in everyday communication as well as in cases where language ability is disrupted.

One condition that shows the relationship between brain function and language is aphasia. Aphasia is a language disorder caused by brain damage, most often in the left hemisphere (Goodglass & Kaplan, 1998). It affects a person's ability to produce or understand language. Aphasia does not reduce intelligence, but it changes how language is processed and expressed. Depending on the location of the damage, aphasia appears in different forms, including Broca's aphasia, Wernicke's aphasia, and global aphasia (Goodglass & Kaplan, 1998).

Broca's aphasia is associated with non-fluent speech. Individuals with this condition often produce short utterances, omit function words, and experience difficulty in forming grammatical structure (Fromkin, Rodman, & Hyams, 2018). Comprehension is often more preserved compared to speech production. The difficulty is related to sentence planning and grammatical encoding rather than in the motor ability to produce sounds. For this reason, Broca's aphasia provides a relevant case for analyzing how sentence structure is formed in the mind.

Several studies have discussed language production in aphasia from different perspectives. Mulia (2021) described the language impairment of a person with Broca's aphasia using speech data from the SymphUK YouTube channel. The study reported several characteristics of Broca's aphasia, including

dysnomia, phonemic paraphasia, and agrammatism. These findings show how language disruption appears in spontaneous speech.

Research by van Boxtel et al. (2023) focused on sentence planning in people with aphasia. The study used structural priming and eye-tracking to observe how speakers prepare sentences before speaking. The results show that people with aphasia can still adjust their grammatical encoding process when they receive repeated structural input. This finding indicates that the sentence production system remains active even when some parts of the system are disrupted.

Bruns et al. (2025) discussed sentence processing and sentence production in people with chronic aphasia through a therapy program called UTILISE. The program used frequent sentence constructions during listening and speaking tasks. The results show improvement in connected speech after the therapy period. This study shows that sentence production ability can change through repeated exposure to certain language structures.

Although these studies provide useful findings, most of them focus on specific aspects of aphasic speech. Some describe linguistic characteristics, while others discuss sentence processing or therapy outcomes. Few studies describe how the stages of speech production operate in natural conversation over a longer period of time. A psycholinguistic description that connects observable utterances with the stages of speech production is still limited.

Robert Gast experienced aphasia after an ischemic stroke in May 2013 at the age of 33. The stroke affected language-related areas of the brain. In the early stage of recovery, his speech output was limited to short responses such as “yes” and “no,” and these responses were sometimes inaccurate. He later participated in outpatient therapy and continued language practice at home. Over time, his speech pattern show differences, although features associated with Broca’s aphasia remained present. His recovery process was documented through publicly available videos on the *My Aphasia* playlist, Robert Gast YouTube channel. The recordings capture spontaneous conversation in everyday settings and reflect natural interaction.

The data in this research consist of three public videos recorded between 2014 and 2017: “Rob’s 1 Year,” “From Severe Aphasia to Now,” and “Acceptance and Setting Goals in Aphasia.” These videos represent different points in the recovery period and allow comparison across several years. The recordings include spontaneous responses, pauses, repetitions, incomplete sentences, and attempts at self-correction. Such data provide access to natural speech rather than responses produced in experimental tasks.

Speech production can be described using Levelt’s Speech Production Model (1989; 1999). The model explains how a speaker moves from an idea to spoken language through six stages: conceptual preparation, grammatical encoding, morphophonological encoding, phonetic encoding, articulation, and self-monitoring. Each stage represents a different level of processing within the speech production system. Harley (2014) explains that disruption may occur at different stages of this system, and observable speech patterns can reflect which stage is affected.

In Broca’s aphasia, some stages may continue to operate, while others show disruption. For example, a speaker may understand a question and form relevant message but produce incomplete grammatical structure. Repetition or delay may reflect difficulty in retrieving word forms. Self-monitoring may appear when the speaker attempts to correct an utterance. Postma and Kolk (1993) report that individuals with Broca’s aphasia often show awareness of their errors, indicating that monitoring mechanisms may remain active.

Previous research on Broca’s aphasia often describe error types, naming difficulty or grammatical impairment. Some studies focus on linguistic characteristics in spontaneous speech, while others discuss sentence planning or therapy outcomes. However, many of these studies analyze speech at a single moment or use controlled tasks in clinical settings. Fewer studies describe how the stages of speech production operate in natural conversation over a longer period of time. A psycholinguistic description that links observable utterances with the stages of speech production is still limited. For this reason, a study that

connects natural speech data with the full structure of Levelt's Speech Production Model across different moments of recovery is needed.

The present research focuses on Robert Gast's utterances in the three public videos: "Rob's 1 Year," "From Severe Aphasia to Now," and "Acceptance and Setting Goals in Aphasia," recorded between 2014 and 2017. Only spoken utterances are analyzed. Gestures and non-verbal elements are not included. The analysis does not involve neurological imaging or acoustic measurement. Attention is directed toward linguistic output and its relation to Levelt's six stages.

Each utterance is categorized to determine whether a stage functions, shows disruption, or shows change across time. Conceptual preparation is identified as functioning when the message is relevant to the context. Grammatical encoding is identified as functioning when lexical items are organized into structured sentences. Morphophonological encoding is considered functioning when word forms are retrieved without extended searching. Self-monitoring is observed when speakers detect and adjust their speech. Disruption is identified when omissions, repetitions, or fragmentation appear in relation to a specific stage.

The scope of this study is limited to the six stages of Levelt's Speech Production Model. Each utterance is described in relation to conceptual preparation, grammatical encoding, morphophonological encoding, phonetic encoding, articulation, and self-monitoring. The study does not aim to provide a medical diagnosis or evaluate clinical therapy effectiveness. The classification of aphasia type is based on observable linguistic features in his speech. The focus is on how spoken language reflects the functioning of speech production stages and how those stages show change over time.

This research seeks to describe how a speech production system affected by stroke reorganizes itself during recovery. Changes in sentence completeness, function word usage, lexical stability, and repair behavior are treated as indicators of how specific stages operate at different moments in time. Through this perspective, the study connects observable utterances with a structured

psycholinguistic model, offering a way to describe both disruption and gradual improvement within a single analytical framework.

1.2. Statement of Problem

Previous research on Broca's aphasia mainly focuses on identifying linguistic errors or grammatical impairment. Most studies describe disruptions at specific linguistic levels without explaining how the entire speech production system operates as an integrated process. Although Levelt (1989; 1999) proposes that speech production consists of six interconnected stages, only limited research applies this complete framework to longitudinal natural speech data.

Existing studies rarely describe how each stage functions, shows disruption, and changes over time within a single recovery case. Because of this limitation, there is still insufficient explanation of how the stages of speech production reorganize during long-term recovery in natural communication. To address this gap, this study analyzes Robert Gast's utterances across different years using Levelt's Speech Production Model. Based on the background described above, this research is guided by the following questions:

1. How each stage of Levelt's speech production model is functioning or disrupted in Robert Gast's utterances?
2. How do these stages of Levelt's Speech Production Model change or show improvement across Robert Gast's utterance over time, as reflected in the three videos from 2014 to 2017?

1.3. Research Objectives

In line with the research questions above, the purposes of this study are:

1. To analyze how each stage of Levelt's speech production model is functionally manifested or disrupted in Robert Gast's utterances.
2. To analyze how these stages of Levelt's Speech Production Model change or show improvement across Robert Gast's speech over time, as reflected in the three videos from 2014 to 2017.

1.4. Research Significance

The findings of this study are expected to broaden the understanding of how Levelt's Speech Production Model can be applied to real cases of language recovery in Broca's aphasia. By analyzing Robert Gast's speech across several years, this research provides a clearer view of how language production develops during recovery and how specific stages of the process may change over time.

The study also aims to offer practical value for those working with aphasia, including linguists, speech therapists, and educators. Identifying which stages of speech production improve during recovery can help design more focused assessments and therapy programs that address the underlying processes of speech planning and formulation.

1.5. Definition of Key Terms

1.5.1. Language Disorder

A language disorder is a condition that affects a person's ability to understand or produce language. It usually results from brain injury and can cause problems with speaking, comprehension, reading, or writing (Goodglass & Kaplan, 1998).

1.5.2. Aphasia

Aphasia is a language disorder caused by brain damage that affects the ability to understand or produce speech (Goodglass & Kaplan, 1998).

1.5.3. Broca's aphasia

Broca's aphasia is a type of aphasia caused by damage to Broca's area in the left frontal lobe, resulting in slow and effortful speech with short and incomplete sentences, while comprehension remains mostly clear (Fromkin, Rodman, & Hyams, 2018).

1.5.4. Speech Production Model

The Speech Production Model proposed by Levelt (1989; 1999) explains how ideas are transformed into speech through six stages: conceptual preparation, grammatical encoding, morphophonological encoding, phonetic encoding, articulation, and self-monitoring.