# Sentence Analysis in Broca's Aphasia

**Nurhayati [a]**, **Rusdiawan [b]**, **Arifuddin [c]**,

*Correspondence Author [a]*

## Abstract

This study tries to explore the sentences used by a person with Broca's Aphasia in terms of type and syntactical structure. The goal of this study is to find and describe several important elements that have been said above. Based upon this, this study is a field research using descriptive qualitative research design. By this consideration, the data collection method used in this study is participatory observation method combined with the Record and Report Technique and the Unstructured Interview Technique. In analyzing data, this study employed Intralingual Matching Method as data analysis method accompanied by the informal and formal method as the method of data presentation. Thus, the findings resulted from this study are (1) 111 declarative clauses, (2) 32 interrogative clauses, and (3) 5 imperative clauses. Meanwhile, in terms of syntactical structure, there are only 11 sentence patterns that can be produced, namely S-K, K-S, P-K, S-P, P-O, K-P, S-P-K, K-S-P, P-S-K, K-O, K-P-O, and K-P-S.

## Contents

[a] Mataram University, Indonesia
[b] Mataram University, Indonesia
[c] Mataram University, Indonesia

## 1. Introduction

Understanding well the message intended to convey by the speaker is the significance of a communication.[1,2] If the communication principle above does not work as well as the rules, it will certainly give birth to the concept of miscommunication. In the meantime, of course, automatically the messages intended to be conveyed by speaker will not be well received.[5,6]

Related to the above problems, there must be the reason behind the process of incompatibility between speakers and hearers. One of the many communication inhibiting factors is the possibility of illness suffered by one of the participants such as Broca's Aphasia. In this case, people with Broca's Aphasia are plainly said to have a language disorder when communicating. This might because the left brain of the front of the brain of the sufferer cannot function normally, whose automatic ability to produce sentences that are want to be conveyed will be disrupted as well. Meanwhile, the left hemisphere of the back of the brain functioning to understand the utterances spoken by the speaker of the speech is also not functioning properly, see.[3,4]

Based on the above description, of course, the phenomenon of a people with Broca's Aphasia is very interesting to study from the perspective of scientific language.[7] It is crucial to know that the record of sentences that is capable to be produced by people with Broca's Aphasia is clearly illustrated. In this way, directly, the language disorder as the effect of damage to the left brain of the sufferer can be discovered.[8,9] Thus, then the turning point later is to be clearly visible type and pattern of sentence structure that can be produced.[15]

## 2. Research Method

The basis of this research is field research with qualitative descriptive research design. The source data was derived from every utterance produced by a participant that has been transcribed into written language.[10] Related to this, the data collection method used is a participatory observation method combined with record and report techniques and unstructured interview techniques. The data analysis was conducted by using intralingual matching method accompanied by informal and formal methods as the method of data presentation.[11,12,13,14]

## 3. Results and Analysis
### 3.1  The Production of Sentence Type of Broca's Aphasia

Having detail analysis of the production of sentences that can be produced by the participants- this case, he is Mr. YM, who then through the stage of transcription, identification, and data groupings, it appears that the participant is able to produce sentences like normal people. This is evidenced by his ability to produce declarative sentences, interrogative sentences, and imperative sentences.

A declarative sentence is the most widely produced by YM. It is characterized by the discovery of 111 (one hundred eleven) declarative clauses. Therefore, it can be assumed that YM is linguistically still having language memory at the standard level. 20 declarative clauses discovered in this study are listed below.

1) Hafidz, that is your son
2) no, that is Nafis
3) at eight o'clock
4) go home.
5) yes it is ok

6) It's late afternoon.
7) worn by children, maybe.
8) yes.
9) yes.
10) Inner campus
11) Monday
12) *Si anu* (Someone)
13) Yes Sukri's friend, wearing black
14) Mr.anu, hmm, the bali.
15) Which ... Ida Bagus, gun
16) No, so not the chairman
17) Yes, so an assessor
18) Yes
19) Because all hope
20) Instead of wanting in FKIP only

Based on the data above, it indicates that the declarative clause/news is the most widely used clause by the informant, there are 111 clauses when compared to the number of other clauses accumulated. Clauses (1) and (2) are news clauses that describe the activity of the informant when the researcher has a dialogue with him. The clause is delivered by the informant as a form of an answer to the question that the researcher gave about the names of the grandchildren of the informant. Clauses (3), (4), (5) are news clauses containing information that the informant has traveled with his wife.

By detail analysis, it appears that all of the above data is not well structured. It is claimed because between one clause and other clauses, for example, does not indicate proper information coordination. That is, each clause with one form of information involved in it seems like standing alone without any relation to other clauses. Even though, it can be ascertained that the principle of certainty in communication is a complete understanding of the information contained in it. In the other words, it can be said that the clauses above are arranged partially when in fact it should be built holistically.

Furthermore, the explanation of the meaning/information contained in almost all of the above clauses is due to the low level of participant's memory. This is apparent in clauses 12, 14, and many other clauses. Moreover, the things more remembered by the informant is merely the distinguishing feature of something that he wants to convey. It means that the capacity of its STM and LTM (Short-Term Memory and Long-Term Memory) is unfavorable, except with certain things that have emotional linkage. While the rest of that, by the time, it will be more dispersed.

Meanwhile, in terms of the type of interrogative and imperative sentences, the ability of YM can be said to fall drastically. It is characterized by its ability to produce only 32 clauses for interrogative and 5 clauses for the rest. If it is measured according to the normal person's size, the numbers are still be very far above that number. It means that when sufferer gets a stroke, the most severely damaged parts of the brain is the brain's nerves functioning to formulate the above two types of sentences. The examples below are presented in sequential data.

1) already, what time?
2) exist in, nothing outside?
3) already thesis how you Ati?
4) is there that?
5) who is that longish?
6) What is the name?
7) Where is Dino?
8) Who picked him up?
9) Why cannot come alone?

10) Who took him?
    1) Just talk
    2) Let's eat
    3) Just go
    4) Go, call
    5) Yes, talk… just talk

**3.2 Syntactical Structure of Sentence Produced by Person Withbroca's Aphasia**

Apparated from the types of the sentence previously described, this part will discuss the syntactical structure of sentences produced by the participant namely YM. Based on the data that had been transcribed, it can be assumed that YM status as Broca's aphasia sufferer is only able to produce 11 (eleven) sentences pattern. The eleventh mentioned sentence patterns are presented below.

3.2.1 Clause with S-K Pattern

Related to the subtheme above, the lists of clause ware presented in the table below accompanied by the explanation.

| Clauses |
| --- |
| *Hafidz anak kamu itu* |
| Hafidz, that is your child |
| *Pak anu, hmm, yang bali* |
| Mr. anu (someone), hmmm, Balinese |
| *Adiknya yang di dompu* |
| His brother is in Dompu |
| *Siapa yang gondrong itu?* |
| Who is that longish? |

In the above clause, it seems to be only 4 (four) S-K pattern of a clause that is capable of being produced by a participant in which contain several types of news clauses and one interrogative clause.

In the case of the news clause above, it appears that the S-function is dominated by the noun classes, such as "Hafidz", "Pak Anu" and "His brother". Meanwhile, the K function is filled by clause with adverb class. For examples, "your child", "the Balinese", and "the one in Dompu". Meanwhile, for the case of the above interrogative clause, S positions are filled with a question word that has a referent "person" that is indirectly attached to "that longish" utterance.

3.2.2 Clause with K-S Pattern

Clauses that belong to this type are:

| Clause |
| --- |
| *Bukan itu si Nafis* |
| No, that is Nafis |

Whereas, the participant does not frequently produce K-S pattern clauses. There is only one clause discovered, where the K function is filled by "not that" and the function S is occupied by "the Nafis".

3.2.3 Clause with P-K Pattern

Clauses that belong to this type are:

| Clauses |
| --- |
| *Ya temen sukri, pakai hitam* |
| Yes, Sukri's friend, wearing black |
| *Daripada maunya di FKIP saja* |
| Instead of wanting in FKIP only |
| *Masih, lagi delapan belas, depaln tahun* |
| Still, in eighteen, eight years |
| *Pergi kemana itu?* |
| Where to go? |

In the above clause, it can be seen that the function of P is occupied by a diverse class of words that does not only consist of one word such as "run", and "beaten", but it also consists of a combination of several words. The fill clauses are "Sukri's friend", "want", "still", and "go". Meanwhile, the form of "Sukri's friend" which seems to function as a function of K, but it does not happen. It is known from the explanatory form which is filled with the form "wearing black". This means that the noun form referenced by the "Sukri's friend" is someone other than Sukri who is a friend, and that person is more likely to wear black clothes.

3.2.4 Clauses with S-P Pattern

| Clauses |
| --- |
| *Karena semua berharap* |
| Because all hope |
| *ya semua fakultas yang meminta* |
| yes, all faculties asked |
| *Orang FKIP yang punya hak* |
| People of FKIP have the rights |
| *Dino itu kecelakaan* |
| Dino got the accidents |
| *TGB, tidak ada kerjaan* |
| TGB, no work |
| *Orang,, orang yang masukkan itu* |
| People, People who entered it |
| *Ahok itu.. di ... jatuhkan* |
| Ahok.. is dropped |
| *Mina sedang makan* |
| Mina is eating |

Based on the above classification, it is clear that all functions of S are occupied by noun forms, such as "all", "all faculties", "FKIP people", "Dino" and so on. Meanwhile, the forms of filler P are occupied by the form of "Hope," "ask," "have rights," "accident," and so on.

3.2.5 Clauses with P-O Pattern

| Clauses |
| --- |
| *Percaya saya* |
| I believe |
| *Sudah gemuk Agung itu* |
| Agung's already fat |

| |
|---|
| *Pakai air pam* |
| Using PAM water |
| *Ada anak-anak* |
| There are children |
| *Bersihkan pake anu obat betadin* |
| Clean by using ..anu.. betadine medicine |
| *Mengungsi sebagian* |
| Partially evacuate |
| *dipakai anak-anak mungkin* |
| Used by children, maybe. |

Based on the above clause, clauses 1 to 7 clearly shows that P functions are occupied by the word verb class, such as "wear", "clean", "evacuate", and so on. Meanwhile, the O function is filled by the noun word class, such as " pam water ", "children", "betadine medicine", and so on.

3.2.6 Clauses with K-P Pattern

| **Clauses** |
|---|
| *Mau tidak mau dikasi* |
| Willing or not, given |
| *Kalau di Penatoi kena juga* |
| Penatoi is hit too |
| *Ngapain ikut-ikutan?* |
| Why should the bandwagon? |
| *Apa namanya?* |
| What's the name |
| *Kalau di Raba tidak ada masalah* |
| If in Raba no problem |
| *Sapa yang ngantar?* |
| Who took him? |
| *Tidak, tidak kipas angin tidak bisa di nyalakan* |
| No, fan cannot be turned on |
| *Ada di, diluar tidak ada* |
| Therein, outside there is no |

Besides the K-P pattern, in this pattern, there are 8 (eight) clauses categorized into this type. The eight clauses are described detail in the table above. Related to that, it seems that the function of K of all clauses is filled by the adverb class of words which is then followed by the word class verbs as a function of P. Randomly assigned, the function K is filled by "willing or not", "if in Raba", and so on.

3.2.7 Clauses with S-P-K Pattern

| **Clauses** |
|---|
| *Orang tidak mau bekerja sendiri* |
| People do not want to work alone |
| *Tidak, dia bi bisul ini* |
| No, he has a boil |
| *Hafidz, kuat pegangan tangannya* |
| *Hafidz,* hold his hand tight |

In this context, the clauses constructed from the three syntactic functions are described. However, after doing deep analysis, it is found that the participant is not able to produce clauses composed of these three syntactic functions. Related to the description above, the three clauses are filled by the noun word class as the S function, such as "person", and "Hafidz". Meanwhile, the functions of P and K are respectively filled by the verb and adverb class words.

3.2.8 Clauses with K-S-P Pattern

| **Clauses** |
| --- |
| *Tidak apa sih orang minta* |
| No problem, people asked |
| *Di Penatoi banyak semua kena banjir* |
| In Penatoi many all hit by flood |
| *Disebelah sininya bentangan jembatan tidak ada* |
| Beside the bridge stretch does not exist |

The case of clause 1 indicates that the function of K is filled by the adverb class of the word "no problem", then the function S is occupied by the noun word "no" and "ask" as the filler of the function P derived from the class said verbs. Meanwhile, the K function in the second clause is filled by the adverb class of location ie, "in Penatoi" stating the location of the place. Then the form of "many all" (meaning everyone) derived from the noun word class occupies the function S and "hit by the flood" as its P function.

3.2.9 Clauses with P-S-K Pattern

| **Clauses** |
| --- |
| *Kasihan orang–orang di luar fakultas* |
| Poor people outside the faculty |
| *Tetap om den di terminal?* |
| Om den remain in the terminal? |

In the case of the P-S-K pattern clause, only two clauses are found. Clauses 1 and 2 are composed of the word verb class as P, which is "pity" and "fixed". Then the form of "people" and "om Den" derived from the noun word class occupy the function S, followed by the form "outside the faculty" and "in terminal" as the function filler K.

3.2.10 Clauses with K-O Pattern

| **Clauses** |
| --- |
| *Di mana dino?* |
| Where is Dino? |
| *Itu dia Dino* |
| That is Dino |
| *Siapa yang antar tadi?* |
| Who took him |
| *bagaimana babe?* |
| How is babe? |
| *Sudah berapa anaknya itu?* |
| How many children is that? |

Nurhayati, - Nurhayati, Rusdiawan, Arifuddin. (2017). Sentence Analysis in Broca's Aphasia. *International Journal Of Social Sciences And Humanities (IJSSH), 1*(3), 145-154. doi:10.21744/ijssh.v1i3.68

| |
| --- |
| *Berapa biji giginya?* |
| How many his teeth? |
| *Bagaimana kabarnya si babe* |
| How is Babe ? |

All clause included in this type of pattern are filled by interrogative form clauses, such as "Where", "how", "how" and so on. However, semantically these interrogative forms, if it is analyzed deeply from the subsequent clause of the clause, it is clear that the information requested concerns on the problem of "situation and or description" of the object. That is why the eight clauses are categorized into the K-O pattern clause.

### 3.2.11 Clauses with K-P-O Pattern

| **Clauses** |
| --- |
| *Itu bagaimana keluar kencingnya?* |
| That's how it came out of his urine? |
| *Siapa yang jemput dia?* |
| Who picks him up? |
| *Kenapa ikut campur tangan mereka itu* |
| Why intervene them |

Actually, the third case clause in the table above can be said in harmony with the case clause 4.3.10 earlier. However, the difference is the longer pattern, where there is an addition of the P function between the functions of K and O. This is indicated by the attached verb class of "out," "pick", and "interfere"

## 4. Conclusion

Based on the results of interpretation and analysis of data that have been studied, in terms of the aspect of the ability to produce sentence type, the participant is still able to produce 3 (three) types of sentences. It is proved by the discovery of 111 (one hundred and eleven) clauses with declarative type, 32 (thirty-two) interrogative type clauses, and 5 (five) clauses with imperative types. In terms of sentence patterns or sentence functions that can be produced by the participant, in general, it can be drawn two main groups consisting of two syntactical functions and three syntactical functions. The syntactic functions that belong to the first major class are S-K, K-S, P-K, S-P, P-O, K-P, and K-O. Meanwhile, the syntactic functions belonging to the second major class are S-P-K, K-S-P, and P-S-K.

**References**

1.  Alwi, H., Dardjowidjojo, S., Lapoliwa, H., & Moeliono, A. M. (1998). Tata bahasa bahasa Indonesia, Edisi Ketiga. *Jakarta: Perum Balai Pustaka*.
    View in (Google Scholar)

2.  Alwi, H., & Dardjowidjojo, S. (1998). hans Lapoliwa, Anton M.
    View in (Google Scholar)

3.  Dharmaperwira dan Willemijn Mass. 2002. *Aphasia: Description, Checking, Handling Second Edition*. Jakarta: Fakultas Kedokteran Universitas Indonesia.
    View in (Google)

4.  Jap, B. A., Borleffs, E., & Maassen, B. A. (2017). Towards identifying dyslexia in Standard Indonesian: the development of a reading assessment battery. *Reading and writing*, *30*(8), 1729-1751.
    View in (Google Scholar) (Springer)

5.  Berndt, R. S., Mitchum, C. C., & Haendiges, A. N. (1996). Comprehension of reversible sentences in "agrammatism": A meta-analysis. *Cognition*, *58*(3), 289-308.
    View in (Google Scholar) (Scopus)

6.  Astawa, I. N., Mantra, I. B. N., & Widiastuti, I. A. M. S. (2017). Developing Communicative English Language Tests for Tourism Vocational High School Students. *International Journal of Social Sciences and Humanities (IJSSH)*, *1*(2), 58-64.
    View in (Google Scholar) (CrossRef)

7.  Aini, Z. (2017). The Actualization of cultural elements in novel Guru Onyeh by Salman Faris. *International Journal of Social Sciences and Humanities (IJSSH)*, *1*(3), 17-27.
    View in (Google Scholar) (CrossRef)

8.  Suryasa, I. W. The Roles Played of Semantic Theory Found in Novel the Moon that Embracing the Sun Translation.
    View in (Google Scholar) (PDF)

9.  Kean, M. L. (1977). The linguistic interpretation of aphasic syndromes: Agrammatism in Broca's aphasia, an example. *Cognition*, *5*(1), 9-46.
    View in (Google Scholar) (Scopus)

10. Suryasa, I. W. (2015). Borrowing Technique in The Translation of Bali Live Magazine Into Indonesian. *LINGUISTIKA*, *21*(41).
    View in (Google Scholar) (PDF)

11. Dronkers, N. F., & Baldo, J. V. (2010). Language: aphasia. In *Encyclopedia of neuroscience*. Elsevier Ltd.
    View in (Google Scholar) (Scopus)

12. Suryasa, I. W. (2016). Potential and actual expression in blocking system (morphology studies). *International Journal of Research in Social Sciences*, *6*(3), 682-691.
    View in (Google Scholar)

13. Kean, M. L. (1977). The linguistic interpretation of aphasic syndromes: Agrammatism in Broca's aphasia, an example. *Cognition*, *5*(1), 9-46.
View in (Google Scholar) (Elsevier)

14. Kolk, H. H. J. (1978). Judgement of sentence structure in Broca's aphasia. *Neuropsychologia*, *16*(5), 617-625.
View in (Google Scholar) (Scopus)

15. Grodzinsky, Y., Pinango, M. M., Zurif, E., & Drai, D. (1999). The critical role of group studies in neuropsychology: Comprehension regularities in Broca's aphasia. *Brain and language*, *67*(2), 134-147.
View in (Google Scholar) (Scopus)

**Biography of Author**

| | |
|---|---|
|  | Nurhayati was born in Sumbawa Besar, August 8, 1989, she lives in Jln. Neuningan. Gg. Ketapang Indah 3. No. 62 Lendang Lekong Bertais. Sandubaya District, Mataram, NTB. She graduated her elementary school at SDN 48 Cakranegara, Junior High School at SMPN 1 Narmada, Senior High School at SMAN 2 Mataram. She finished her bachelor degree in Indonesian Language Education Department, Mataram University. She completed her master degree in Master Program of Indonesian Language Education, Mataram University. Her hobby is Reading and Photography and her profession is a housewife. (atie.machi@yahoo.com) |
|  | Dr. H. Rusdiawan, M.Pd. was born in the village of Montong Buwuh, West Lombok on May 11, 1957. He completed basic education in his hometown. Then he continued his junior and senior secondary education in Mataram City. Bachelor degree, master, and doctoral degree he completed at one college, namely IKIP Malang which is now the State University of Malang. He served as Dean of the Faculty of Teacher Training and Education, University of Mataram and now he serves as the head of Master of Education Program at Mataram University |
|  | Arifuddin obtained his Bachelor of English Education from FKIP Universitas Mataram, Master of Education (M.Pd) degree from Ganesha University of Education, Singaraja, Bali. His Doctoral Degree (DR) was obtained from State University of Surabaya with a dissertation focusing on the field of Psycholinguistics. His interest in study is generally related to English learning from a psycholinguistic point of view. Besides winning research grants and dedication in the field, he has also been working on national and international scientific works. His phenomenal work is Neuropsycholinguistics and is now circulated and sold nationwide. He can be contacted via e-mail arifuddin@unram.ac.id or directly contact him in Lecturer Room of English Education, Building D Floor 1 FKIP Universitas Mataram, Jln Majapahit No 62 Mataram. |