The Origin of Language from the Perspective of Language Functions in Aphasic Patients

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Abstract

This study investigated the origins of human language through several examples of the characteristic communication styles of aphasic patients and critically examined the widely held theory of the origin of language such as complex cognitive blueprints that, once fulfilled, would allow language to "emerge" (Gans, 2019, p. 20).

As a premise for our discussion, I first reviewed Eric Gans' theory of the origin of language. Secondly, this study focused on four aphasia cases introduced by Yamadori Atsushi □□□, who is a Japanese neuropsychologist and brain scientist, and examined the origin of language and how brain function has developed throughout human evolution. The brain has acquired various functions through evolution, and additional functions were added to the surface of the brain. So, when the brain is damaged, it loses functions that were acquired later in evolution. From this perspective, I come up with analyzing the characteristics of the language functions of aphasic patients will help us understand the brain functions seen in the early stages of human development. It also provides important evidence to support Gans' hypothesis for the origin of the language. Nowadays, the purpose of language has become to communicate through words. But what is important is "structure." The structure in language is the "speech function." In other words, it is what Ferdinand de Saussure calls parole against langue.

Keywords: Aphasia, Brain, Speech Function, Origin of Language, Echolalia

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1. **Introduction**

This study investigates the origins of human language through several medical cases of the characteristic communication styles of aphasic patients and critically examines the widely held theory of the origin of language as a complex set of cognitive blueprints that, once fulfilled, would allow language to "emerge," such as Eric Gans, as proponent of Generative Anthropology, has critiqued (Gans, 2019, p. 20).

First of all, I would like to mention how I became interested in the subject of aphasia and the origins of language. The major moment was that my grandmother had a stroke a few years ago, and although she gradually recovered, she developed aphasia as an aftereffect. She was unable to talk about new topics smoothly, such as the news, which she had often talked about in the past, and she suffered a lot, showing her frustration at not being satisfied with her abilities. However, to my surprise, she did not seem to have much difficulty in talking about old memories and conversations that I see repeated in her daily routine, such as topics related to the day's weather, and her words of concern for us grandchildren like "Make sure you eat well," and she was able to carry on the conversation smoothly. In addition, I had originally completed a master's degree in clinical psychology and had studied higher brain dysfunction, including aphasia, in the course of my studies, which gradually strengthened my interest in the relationship between the brain and language.

Subsequently, I read a book by Eric Gans, who proposed a new theory of the origin of language, and I strongly agreed with his opinion that language is not in the first place "about reality." It is not "about" anything; it is a means for deferring violence (not simply "aiding cooperation") by communicating (Gans, 2019, p. 4). When I first read Gans' book, I was very interested in his thesis and took away these key points: if meaningful language was acquired relatively late in human evolution, what then was the nature of primordial communication like?

Therefore, through this seemingly isolated topic of aphasia and language origins, I became interested in exploring the primordial language, the evolution of the brain related to it, and forms of communication.

The hypothesis of this study, and my basic argument, is that when language is divided into two aspects, the "meaning of words," and the "utterance of words," it is the latter rather than the former that is the basic functions of language. Generally speaking, the "meaning of words" is often thought of as the basis and "utterance" as a bonus. For example, whether a dolphin is called "dolphin," "□□□," "Dauphin," or "□□□" differs from country to country. Yet, no matter how people express it, the meaning of "dolphin" is the same.[1] Therefore, it is usually thought that the "meaning of words" is the foundation, and "utterance" is a bonus. However, that is not the case. I suggest that the utterance of words is the first and meaning is a bonus. Although this assertion may seem strange at first glance, I believe it is an important perspective when considering the origins of human languages. This is because I think that one of the perspectives we must overcome when thinking about the origin of language is not to directly apply our view of language to our understanding of it. Through thinking about the relationship between the meaning of words and utterance of words in language, the following questions came to mind; has meaningful language existed since the primitive stages of humanity? Does the importance of meaningful language have a major place in our communication? Doesn't the view that primitive people were also speaking

meaningful words from the earliest stages more or less reflect our current view of language and communication?

Therefore, the purposes of this study are the following two points. Firstly, I study the importance of utterance of words in the functions of language based on the medical cases of aphasia.[2] Secondly, through the first study, I will compare the model with Eric Gans' model of language origins to examine how primitive humans communicate. In particular, I will focus on his questioning regarding the claim that language has existed as an expression of ideas for humans since the primitive stage. This study can be considered novel in that it explores the relationship between the primitive brain and language by looking at the communication of aphasic patients and the theory of Generative Anthropology.

2. **Validity of thinking about aphasia cases and the human brain**

First, before looking at a case of aphasia, let me briefly touch on some assumptions about the brain. The brain can be divided into two parts based on structure and function: the "new brain" and the "old brain." The old brain includes the part of the brainstem, the diencephalon, and the innermost part of the cerebrum called the limbic system, while the new brain refers to the outer part of the cerebral cortex and the cerebellum.

Figure 1. Old brain and new brain.

Second, I will briefly touch on the characteristics of aphasia. Aphasia is a disorder classified as one of the higher brain dysfunctions[3] and is one of the disorders that mainly present difficulties such as the inability to produce the words one wants to say and difficulty in understanding what the other person is saying in the first place. Furthermore, aphasia is a central area of research in neuropsychology. According to Yamadori (2013), neuropsychology is a field of research that attempts to explore the relationship between the mind and the brain by mapping various psychological symptoms caused by brain injury to the location and amount of brain damage (p. 6). Aphasia is classified into the following five types. **(1) Broca's aphasia**: It is characterized by the inability to speak smoothly and fluently, and when the person tries to speak, words do not come out easily. It is said that often what the interlocutor says can be understood. **(2) Wernicke's aphasia**: Although they speak smoothly and fluently, they often misstate what they are saying and are incoherent, making it difficult to form a proper conversation. It is also difficult to listen to and understand. **(3) Conduction aphasia**: They can listen to and understand what the other people are saying and have a conversation. However, they realize the errors in the words they utter and try to restate them repeatedly to gradually get them closer to the correct words. Because of this repeated restatement and rereading, the speech sounds like stuttering. **(4) Global aphasia**: It is a severe aphasia that impairs all language functions: speaking, listening, reading, and writing. They can barely understand what the other person

is saying, and they can hardly say any meaningful words. In some cases, the patient may not be able to speak at all, and even when they can speak, they often say only certain words or sounds, such as “no” or “tan.” (5) **Anomic aphasia:** Although they can listen to and understand what others are saying and speak smoothly, they are unable to quickly come up with words such as names of objects and people. To convey the words that do not come out, they are characterized by a roundabout way of speaking.

This study will explore primitive communication in human evolution by looking at the communication of patients with aphasia symptoms. In this study, I mainly present the case of Global aphasia. I assume that it is possible to use this data to think about primitive language abilities because of the loss of various language functions that humans can consciously control.

3. **The theory of Generative Anthropology**

Before moving to the main topic, next, I will overview Eric Gans’ theory of the origin of language as a premise for our discussion. Gans comments on the “Intrinsically ludicrous assertion that language ‘emerges naturally’ when our cognitive level reaches such and such a threshold. The absurdity of treating language as a biological-cognitive function whose communicative setting is simply irrelevant reflects the reduction of causality to a web of correlations none of which ‘means’ any more than another, whatever the naive participants in the activity may think about it” (Gans, 2019, p. 9).

To the contrary, Gans asserts that the origin of language was an event in which language arose (via a non-verbal gesture) to resolve a potential mimetic crisis within a community and was shared within the group as having more than just a gesture. Gans states that it was the ostensive gesture from the group members toward a central object of common desire that became the first (linguistic) sign. In other words, the uniquely human phenomenon of pointing to an object by a member of the group, which is then observed by the other members of the group, and the sharing of an object within the group, was the first principle of the new model of the human and language. This phenomenon is the result of a collective phenomenon, and the origin of language is not the result of individual genetic reorganization or other personal characteristics. Gans called this moment the “Little Bang” of the human species, to emphasize its profound importance. In other words, it is necessary to consider the function of language and communication within an interaction when thinking about primordial language.

I also paid particular attention to the part of his argument that language cannot have begun with declarative sentences (Gans, 2019, p. 5). While Gans says this is the point that scientists have the most difficulty understanding, he cites the following examples as points they overlook.

> To them, it seems obvious that language emerged so I could make to a fellow proto-

> human the falsifiable statement that “the food is over the hill.” What they fail to realize is that had this been the originary purpose of language, we would have evolved like vervet monkeys, emitting different signals for the different objects of interest in our environment. (Gans, 2019, p. 5)

Certainly, we imagine, if only vaguely, that the first language was a kind of instruction for sharing the location of food within the group. However, are these assumptions so reasonable? Of course, when primitive humans point out that there is food over there, the nonverbal gesture of pointing is accompanied by a shared meaning in the group. It is generally assumed that this is the result of a certain level of maturation in the primitive human brain. After all, the premise of language origin is the maturation of cognitive abilities in the brain within the individual.

I disagree with this assumption. This is because, as we will see in our later analysis of the communication styles of aphasic patients, we are more likely to have acquired meaningful language in the course of human evolution, and it was not until relatively late that it appeared as a functional language that matched the situation. In terms of the above ideas, I agree with Gans’s idea that it is useless to conceive complex cognitive blueprints that, once filled, would allow language to “emerge” (Gans, 2019, p.20). Rather, I believe that the importance of the speech function or utterance of words, one of the keywords in this study, should not be overlooked before the maturation of cognitive functions within the individual. Language is ipso facto a conscious interactive phenomenon (Gans, 2019, p.20).

My subsequent study will attest to this point made by Eric Gans and will challenge assumptions that are difficult to understand for scientists who have become accustomed to an excessively rationalistic way of thinking.

4. **Aphasia case studies**

In this section, I will focus on four aphasia cases introduced by Yamadori Atsushi □□□, who is a Japanese neuropsychologist and brain scientist, and examine the origin of language and how brain function has developed throughout human evolution.

4-1. Case A

The first case is that of an aphasic patient who exhibits a striking characteristic of automatic repetition of words without understanding their meaning (this is called echolalia).

> The scholar who has done the best work on echolalia is Stengel[4] of Vienna. The first patient he reported had lost most of her spontaneous speech and only uttered a few “te-te” sounds. Nevertheless, when spoken to, she could parrot the words back. Stengel spoke to this patient in various situations and made the very important neuropsychological discovery that her echolalia was never produced indiscriminately.

> In other words, when the texter spoke to her face to face, she repeated his words, but if the tester turned his back to her, she never repeated his words. (Yamadori, 2013, p.71)

This is a case of a patient with severe aphasia who has no spontaneous speech at all and can produce only limited repetition of sounds. As indicated in Section Two, most of the language functions have been taken away, probably due to damage to a much deeper region within the new brain region that controls language functions. On the other hand, even with the loss of most language functions, she was able to accurately parrot back what others had said. From this case, we might say that one of the most primitive language functions is parroting. Babies can also parrot “papa” and “mama” even when they do not understand the exact meaning of these words when they call their parents. This indicates that the ability to parrot back the other’s words is a primitive function that was acquired at a rather primitive stage in the human evolutionary process. Furthermore, A did not respond when the tester called out to her from behind. This suggests that the function of conversing face-to-face with the other person is also primitive. A’s case is also important as a critical perspective on the current linguistic research based on “langue” compared to “parole” (Takata, 2024). F. de Saussure argues that although the use of language is an activity undertaken by one particular individual, it has a social extension beyond the individual in that it is done to communicate with others. From that point of view, language is a reality shared by that linguistic society rather than belonging to an individual. The study of language is to investigate the system of language in such a sense, and the view was expressed that a one-time individual linguistic phenomenon (parole) is not the first object of study. Current linguistics has begun to elucidate the language system, *langue*, based on grammatical rules. However, in the case of A, what humans originally possess is *parole*, and grammatical systems are only acquired late in life. If we are to elucidate the characteristics of the original human language, we should first seek its essence in utterances of words, in other words, parole.

4-2. Case B

The next patient also has severe impairment in all language functions except echoic.[5]

> The patient sometimes echoed popular songs played on television and radio. Eventually, the hospital staff noticed that he was humming one song even when the TV or radio was not playing that song. He was singing without stimulation. Geschwind and his colleagues carefully checked to see if the song had been sung before the onset of the patient’s illness, and found that it was a song that the patient could never have known before his illness. In other words, he had learned the song anew. (Yamadori, 2013, p. 71)

It is clear from this example that the words were not just bouncing off the walls of the

patient, but that the rhythm and words of the song were received and even memorized by the cerebrum, without understanding (Yamadori, 2013, p. 71). Takata (2024) infers that the unconscious has the function of uttering meaningless phrases apart from the conscious mind and that it seems to have that function rather than the original one. Therefore, even if humankind can no longer speak meaningful words, that function remains until the end. Linguist Roman Jacobson calls this function the poetic function. If the referential function is a conscious, intelligent linguistic act, then the act of repetition itself is considered to have a function prior to intellectual meaning.

4-3. Case C

Yamadori (2013) continues by presenting the case of the following patient to show that when some language ability is maintained, the properties of the echolalia is somewhat changed. The following is a part of conversation between doctor and patient.

> (Doctor) Please tell me your name. "(Patient) You said my name?"
>
> (Doctor) What is your address? "(Patient) What is my address?"

In other words, the words are no longer literally and ungrammatically repeated, and modifications are added to the repeated words. The "you" becomes "I" and the command becomes a question. The response to the second question given here, "Where is my address?" also differs from the inspector's clear question inflection. The words are the same repetitive, but the patient's tone changes to a questioning tone. Although the words are the same repetition, the patient is clearly speaking words that have been converted into his or her own language. The form of the words is fully equipped with appropriateness as a response to the spoken words. And yet, it is difficult to say that the words of these questions are understood. The evidence is that the patient's response is limited to this kind of "counter-question" echolalia, and never answers the content of the question (Yamadori, 2013, p. 72).

From this patient's example, it would seem that the distinction between "self" and "other" also seems to be a fairly primitive function. What is surprising is that the distinction between "self" and "other" is not the most primitive function, but rather that parroting is the most primitive function.

4-4. Case D

The last patient is characterized by the presence of confabulation. The term "confabulation" refers to a verbal statement of fabricated, distorted, or misinterpreted memories about oneself or the world, without the conscious intention to deceive (Funayama & Mimura, 2008, p. 845). He had a ruptured brain aneurysm, underwent surgery, and has been out of surgery for about two months. The following is part of a conversation between the doctor

and the patient.

> (Doctor) Where are you? "(Patient) I'm in Kyushu[6], on my way up to Kyusyu, where my friend Sakamoto's city hall is located. There is a tunnel there…" The Doctor misheard *tunnel* (*Tonneru* in Japanese) as "flew" (*Tonda* in Japanese). What flew? "The corks of some empty bottles flew out. The stoppers of empty bottles around here are thin, but the stoppers of empty bottles in the Russian army are this long…. It's scary when they fly off…. wonder where they went and if they went up to the top… it's a Kasairengōshūkan…" What's the Kasairengōshūkan? "It's a Kasairengōshūkan. If you burn the houses first, it will be quicker." What are you going to burn? "It is going to burn people." Where are you? "This is a cemetery." The doctor asked, tapping the bed with his hand to get the patient's attention: Where is this place? "No, here, that, that is one. It has electricity in here." Where is this place? You are sleeping now, aren't you? Where is this place where you are sleeping? Is it your house? Is it a cemetery? "Cemetery?… Cemetery…" (Yamadori, 2013, p. 61)

D has a strong disorder of memory and is no longer able to remember new events at all. For example, when he had surgery or where he is. He also has a reduced capacity for attention and is unable to focus and sustain his attention on a single thing. However, according to Yamadori (2013) as can be seen from the above conversation, D has no impairment in understanding in the sense that is usually referred to in aphasia. When asked about the location question, he responded, "Kyushu, city hall, tunnel, and cemetery," what flew? to the question, "The corks of some empty bottles flew out," and what are you going to burn? to the question, "It is going to burn people (p. 62)." The meaning of the question can be said to be understood, regardless of content, and the operability of the language itself remains somehow unimpaired, but the various abilities surrounding the language have been severely depressed. The resulting meaningless utterance is called confabulation. Normally, if a person does not understand a question, the words "I don't know" should appear as a result of the actions of all regions of the cerebrum. However, if the brain loses unity in its functioning, and many functional systems become unable to respond appropriately to questions due to their activities, the language area alone will respond to the question, and a kind of word association game will begin to take place on its own.

D has no data about the temporal and spatial coordinates that confirm his existence, such as where he is currently located. To fill this information void, the area is filled with words that are available on their own. Yamadori (2013) calls this the "self-running" of language (p. 63). Comparing the language function to a horse, its controller is the rider. Sometimes the horse starts to run on its own. Yamadori also cites as an example of self-running of language a lie that is told unintentionally. We humans frequently tell lies unintentionally. Instead of understanding what is going on and saying the words, the words may come out on their own. He said that in cases of torture, where the interrogator coercively repeats over and over again what should be confessed to make the person confess as intended, this is

precisely the means of using the property of self-running of language. Words, by their very nature, do not always involve content (Yamadori, 2013, p. 65). In other words, if we recognize the situation correctly and connect words to it, we can have a meaningful conversation.

5. **The importance of utterance in human evolution**

To summarize these aphasia cases, I can say the following. At first, from case A, echolalia is a quite primitive function among the functions associated with human language. It is also assumed that face-to-face conversations were conducted from primitive times. Secondly, in case B, similarly to case A, the function of repeating sounds without understanding meanings, or spontaneously humming them, can be said to be one of the most primitive functions. It is an unconscious language function, and the function is older and seems to be more original than the function of highly manipulating language. So even if people can no longer speak meaningful words, that function remains until the end. Thirdly, in case C, the ability to separate and recognize oneself from others is also one of the primitive functions. However, it is not the oldest one. Finally, as Case D shows, the ability to grasp the current situation and express it appropriately through words is the result of a fairly sophisticated brain integration function. Humans can have meaningful conversations when they correctly perceive a situation and connect it with words. In other words, meaningful conversation is a result of the final stage.

Humans were able to have voices and acquire language thanks to bipedalism. It is said that this is because the airway, through which air is inhaled through the nose, and the esophagus, through which food is eaten, are vertically extended and directly connected. Through these physical changes, sounds and rhythms that are comfortable for humans to produce are created. The brain memorizes these sound patterns by repeating sequences of sounds that are easier for the brain to produce. The brain acquires the new function of memorizing sound patterns. This function is assumed to be involved in the ability of patients with severe aphasia to imitate and repeat words without understanding their meaning, even when they have lost most language functions. The desire to imitate what the other person says is also a remnant of the process of imitating sounds made by others with speech functions since primitive times and is considered to be the core function of the human language.

At the same time, as we saw in Section 2, humanity has come to have two distinct functions in the brain, a new brain and an old brain, two different in terms of whether or not humans consciously perform their behaviors. Consciousness evolves further to grasp situations. The simplest situation is a here and now or the distinction between “self” and “other.” Therefore, as we saw in Case A, in conversations other than face-to-face, A is unable to parrot, and when he retains some language foundation, as in Case C, he can distinguish between himself and another.

In contrast to language functions that are thought to have existed since primordial times, such as echolalia, language that has become more sophisticated through the action of consciousness has acquired more complex language functions. This is the referential function proposed by Jacobson, which uses language to interpret, describe, and record the world of the environment. In contemporary society, language tends to be considered as one of the means of communication. We can exchange ideas and have conversations through language. However, as we confirmed in the introductory section of this study, the basis of language is the utterance of words in contrast to the meaning of words. As we saw in the case of aphasia in this study, the first step is to imitate sounds, and it is only much later that the brain integrates the various functions to produce words with meaning appropriate to the situation. I think it is important to not forget that meaning was added later, and that utterance preceded it.

Conclusion: rethinking the theory of Generative Anthropology

Gans (2019) complained that it is absurd to say that at some point we begin to have "ideas" and that speech emerges because we "want to express them" (p. 11). Therefore, in this sense, GA confronts the problem of the origin of mature, declarative language as a secondary problem and they begin with the emergence of human language from a pre-human, prelinguistic state, through the minimal utterance forms of the ostensive and the imperative, reaching the declarative only at the end of our journey (Gans, 2019, p. 15). I have focused on the assertion that language did not exist as an idea with meaning from the stage of its origin. However, as we saw in Section 3, this is the most difficult aspect of GA for scientists to grasp the theory because particularly since the Enlightenment, we have lived in a rationalistic world in which every use of language is supposed to be falsifiable (Gans, 2019, p. 5).

However, as we have seen from the example of the aphasic patient, it is clear that for humans, communication using words that have meaning and are more appropriate to the situation is an event that occurred later in evolution. On the other hand, the primitive language function was to repeat the sounds made by others. In conclusion, I stated that as far as the core function of language is concerned, it is the utterance of words, and the meaning of words is only an accessory to the long evolutionary history of language. However, as we have seen in current linguistics and the case of Saussure, a main focus of language research has been reversed, and "langue" has become central to linguistics research, as opposed to "parole."

My conclusion is consistent with the assertions of Gans in terms of this point. In a sense, in a society that has come to think too rationally, and in a stream of linguistics that focuses on the study of linguistic regularities and patterns, some people also have difficulty grasping GA's theory of linguistic origins.

In the future, I expect that further research on communication and the brain in currently observable unique human situations, without bringing in metaphysical theories, will further demonstrate the theory of language origins proposed by the GA.

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Notes

[1] This is one of the language functions (the referential function proposed by Roman Jakobson), and as a denotation in linguistics, it means the same thing. On the other hand, it has a different meaning in terms of connotation by each language.

[2] I partly obtained some hints to critically examine some themes related to language from the following information. Takata Atsushi. [ロボマインド]. (Mar 26, 2024). 449.【驚愕!】言葉に意味なんか元々なかった説 [Video]. YouTube. https://youtu.be/Gb-MPRktFjU?si=zcc_UxXS6z4hoNqI The main argument is that meaningful language did not exist from the earliest stages in the development of primitive human language, but only much later in evolution. As this

information has discussed language characteristics from aphasia, I will likewise attempt to analyze the theory of Generative Anthropology from the relationship between aphasia and language.

[3] The term “higher brain dysfunction” is an academic term that refers to cognitive impairment resulting from brain injury in general, and includes so-called focal symptoms such as aphasia, apraxia of speech, apraxia of action, memory impairment, attention impairment, executive function disorder, social behavior disorder, etc. (National Rehabilitation Center for Persons with Disabilities, 2004: http://www.rehab.go.jp/brain_fukyu/rikai/).

[4] Stengel, E. (1947). A clinical and psychological study of echo-reactions, *Journal of Mental Science*, *93*, 598-612.

[5] Geschwind, N., Quadfasel, F. A., Segarra, J. M. (1968). Isolation of the speech area, *Nweropsychologia*, *6*, 327-340.

[6] It is the southwesternmost of the four major islands of the Japanese archipelago.