Discourse analysis. An aid for studying aphasic speech

Article *in* Revista Transilvania · January 2017

CITATIONS
0

READS
4

1 author:

Reka Kutasi
University of Medicine and Pharmacy of Târgu Mures
6 PUBLICATIONS **0** CITATIONS

SEE PROFILE

Discourse Analysis. An Aid for Studying Aphasic Speech

Réka INCZE (KUTASI)

Universitatea „Lucian Blaga" din Sibiu, Facultatea de Litere și Arte
"Lucian Blaga" University of Sibiu, Faculty of Letters and Arts
Personal e-mail: ktsreka@yahoo.com

Discourse analysis. An Aid for Studying Aphasic Speech

Communication plays an essential role in people's lives. It is usually believed that communication simply represents the transfer of information between interlocutors. But the truth is that communication is not a simple process but the generation of meaning. There are times when accurate communication is inhibited by a language disorder or language impairment as a result of stroke or brain damage. One of the mostly studied language impairments by linguists and clinicians is aphasia. Considered to be a language disorder it is imperative to incorporate the analysis of communication or discourse provided by aphasic patients in the study of aphasia. Thus, discourse analysis is considered to be an important aid in the assessment and treatment of aphasic patients.

Keywords: aphasia, language disorder, communication, discourse analysis

Introduction

Language acquisition begins in early childhood, around the age of 12 months[1] and progresses steadily until a person's vocabulary is developed enough to combine words in order to form correct statements. According to Ardila[2] there are two different dimensions in human language, namely the *lexical/semantic* and the *grammatical* one, dimensions that are related to the activity of the temporal and frontal areas of the brain's left hemisphere.[3] Chomsky[4] emphasized that these two dimensions are independent from each other.

Language comprises the following levels: *phonetic/phonological, lexical, morpho-syntactic and pragmatic*. In case of a brain injury, such as aphasia, these levels can be seriously affected so "damage to the Broca area often prevents the use of grammatical morphisms. A patient with a frontal lobe lesion, at the Broca center, will use several concepts with some difficulty, but will almost be unable to use grammatically correct words in order to establish relationships between propositional units. A patient suffering from Wernicke's aphasia does not encounter any difficulties in using syntax, but his messages are empty of content, the patient often invents words to fill the gaps that he does not always seem to be aware of. "[5]

Aphasia is defined as a communication disorder which has an effect on the expression or on the ability to understand the meaning of spoken or written language. According to Estrella Maria de Roo[6] aphasia is a language disorder seen as a result of a damage to the left cerebral hemisphere produced by a cerebral vascular accident, a brain injury, encephalitis or a brain tumor. It is a language impairment caused by the injury of particular parts of the brain which are responsible for speech. In most cases, aphasia occurs as a result of stroke or a cerebral trauma. The main impairment is represented by a disorder in linguistic coding and not in pronunciation or perception. The aphasic patient is clumsy in using language as a symbol.

On the other hand Radu Drăgulescu[7] defines aphasia as: *"a disturbance of form, expression and symbolic comprehension."*

The term aphasia derives from the Greek word "aphatos" meaning speechless.[8] As a medical term, it was introduced in the literature by Armand Trousseau in 1865, replacing older terms such as "alalia" used by Jacques Lordat in 1842 or "aphemia," used by Paul Broca in 1861.[9]

According to Antonio R. Damasio[10] there are six subtypes of aphasias such as: Broca's, Wernicke's, global, conduction, transcortical aphasia and anomia. On the other hand Ardila[11] affirms that there are only two major aphasic syndromes: Broca's or non-fluent aphasia and Wernicke's or fluent aphasia, each one being associated with different neurological characteristics.

Aphasia, Discourse and Discourse analysis

As a language impairment aphasia is studied through discourse that is *"a naturally occurring form of communication that involves the activation and interaction of multiple interconnected cognitive and linguistic subsystems."*[12] When they take part in different types of conversations people follow preset patterns, patterns that may be disturbed thus affecting their ability to convey accurate and meaningful sentences.

There are several definitions attributed to discourse. Discourse is regarded as *"one of the most significant concepts of modern thinking in a range of disciplines across the humanities and social sciences. [……] it concerns the way that language works in our engagements with the world and our interactions with each other [……]."*[13] According to Ulatowska, K. Hanna and Gloria Streit Olness[14] discourse is *"beyond the boundaries of isolated sentences."*

Drăgulescu[15] states that: "*The construction activity and the intention to communicate are the two key concepts of speech." The construction activity* refers to the way a speaker uses words, syntactic and semantic rules in order to formulate a sentence (construction). *The intention to communicate* is defined as the use of the language system, transmission of certain signs (phonetic or graphical). Any deviation from the rule can be defined as a language impairment.

As aphasics exhibit particular difficulties in their daily communication, the study of their discourse has become an assessment method of utmost importance. Wright[16] emphasized the need to study discourse as it can help in the evaluation, identification, diagnosis and treatment of people suffering from aphasia. Olness and Ulatowska[17] highlighted that it is important to study discourse production also from a clinical point of view. Jakobson[18] suggested that discourse analysis needs to involve all the levels of language as *"the totality and interrelation between the different parts of the totality have to be taken into account."* A large variety of elicitation methods have been used in order to obtain language samples as different discourse types may generate different verbal output.

The study of discourse encompasses many disciplines such as: linguistics, psychology, neurolinguistics and communication sciences. Aphasiologists have become interested in studying discourse because:

communication at the discourse level among adult patients frequently reveals a certain degree of difficulty;
it constitutes an evaluation method for aphasics;
it may be used to evaluate treatment outcomes.

The most significant errors that may occur in aphasic speech are: word retrieval errors and errors at the phonological, grammatical and syntactical level. These can be identified with the help of certain protocols such as: *personal narratives, picture descriptions, storytelling, procedural discourse etc.*

Introduced in 1952 by Zellig Harris, discourse analysis was used to analyze connected speech and writing. According to Paltridge[19] Harris intended to use discourse analysis for *"the examination of language beyond the level of the sentence and the relationship between linguistic and non-linguistic behavior."* Discourse analysis is defined by Brian Paltridge as *"language beyond the word, clause, phrase and sentence that is needed for successful communication."*[20] It is now considered to be the most important element in aphasia research.

In order to analyze aphasic discourse, Elizabeth Armstrong[21] underlines the importance of the two theoretical frameworks that need to be taken into consideration when studying aphasic speech, namely the structuralist-oriented and the functionalist oriented one.

Most of the research performed with regard to aphasic speech is done on the basis of the **formalist or structuralist** perspective, concentrating mostly on the analysis of the errors occurred at the level of the microstructure as a result of the examination of the samples of spontaneous speech obtained from aphasic patients through picture description, storytelling, monologues etc. Grimes[22] defines discourse as a particular unit of language above the sentence. According to this perspective language is analyzed at the level of the sentences, phrases and words, namely by focusing on the lexical and syntactic aspects of the discourse produced by the aphasic patient. The lexical aspect has been studied from a semantic and a grammatical perspective. In his article *Spontaneous Speech of Aphasic Patients: A Psycholinguistic Analysis*, Erin Wagenaar et al[23], analyzed the spontaneous speech of 74 aphasic patients identifying errors as substitution of a function word ("I were having dinner"), word order error ("I read always the newspaper") as well as paraphasias ("boo" instead of "blue", "eat" instead

of "drink") and neologisms. Syntactic analysis concentrated on the investigation of the grammatical involvedness of sentences and syntactic errors. Helen Bird and Sue Franklin[24] studied the speech of five aphasic patients who suffered a left CVA by means of storytelling (the patients being asked to tell the story of Cinderella). They presented different aphasic syndromes. The authors concluded that it was more difficult for the subjects to use verbs than nouns. The study also stressed the specific dissimilarities between *"the non-fluent agrammatic and the non-fluent non-agrammatic patients"*.[25]

The analysis completed on word classes used by fluent and non-fluent aphasic patients demonstrated that agrammatic patients use more nouns than verbs while for patients suffering from fluent aphasia verb retrieval seems to be easier than the retrieval of nouns. The results of the study performed by Jean Berko Gleason et al[26] by using the *Story telling protocol*, a very useful evaluation technique of aphasic speech, on 10 aphasic patients (5 suffering from moderately severe Broca's aphasia and 5 from moderately severe Wernicke's aphasia) are the same as those obtained by Helen Bird and Sue Franklin namely that patients with Wernicke aphasia use fewer nouns and verbs while those with Broca aphasia produced more nouns than verbs. Discourse of fluent aphasics was also investigated in terms of grammar. Thus, Roelien Bastiaanse, Susan Irene Edwards and K. Kiss[27] investigated the speech of two English, two Dutch and two Hungarian patients with fluent aphasia in terms of grammatical features. Patients' conversations were taped and the spontaneous speech samples were afterwards transcribed and analyzed in terms of grammar. They found that patients with Wernicke's aphasia have difficulties in producing clausal structures and use more lexical and monotransitive verbs than copulas.

On the other hand the **functionalist oriented research**, investigates discourse at the level of text macrostructure. It focuses on the general meaning of the text. The text is seen *"as an instrument for finding out about something else."*[28] Hanna K. Ulatowska, Alvin J. North and Sara Macaluso-Haynes[29] were the first researchers who performed a thorough investigation of aphasic speech by differentiating between two types of discourse: narrative and procedural one, stating that due to their dissimilar structures the discourse produced by the aphasics might not be impaired in the same way. The same idea was emphasized by Sue Sherratt by stating that *"this approach can offer an additional and more realistic perspective of discourse production that fragmented analyses of discourse do not provide. It can also provide a focus for more appropriate assessment and treatment."*[30] The functionalist analysis is centered mainly on topic maintenance, turn-taking, speech acts, and conversational repair. Audrey Holland[31] introduced the term "functional communication", communication happening in natural settings such as the patient's home, a store etc. by demonstrating that systemic observation in natural settings can help researchers understand aphasic communication. Turn taking is also investigated by those who make use of the functionalist oriented research. Therefore, in a study accomplished by Schienberg and Holland[32] the two researchers analyzed the conversation performed between two patients suffering from Wernicke's aphasia concluding that turn taking is not damaged in aphasia. The same idea is sustained by Ferguson[33] specifically that *"turn taking is relatively spared in fluent aphasia."* Both studies were based on the insights presented by Sacks *et al*[34] concerning the vital nature of turn-taking to conversation, as without it talk might turn into an extended monologue.

Conclusions

Affecting millions worldwide, aphasic speech has been investigated by many researchers from different perspectives. Until 2007 there were no corpora that could be used in order to examine aphasic speech. In 2007, researchers from the Department of Psychology of Carnegie Mellon University created the AphasiaBank project, an online database, which soon became a real aid for researchers who wanted to investigate aphasic speech. The database currently includes corpora (audio or videotaped) from English, French, Cantonese, German, Italian, Japanese, Hungarian, Greek, Mandarin and Spanish languages but none from Romanian. The recordings are transcribed in CHAT format and analyzed with the help of specially designed programs, known as CLAN.[35]

Investigations related to aphasia can be performed based on the functionalist or structuralist perspective, depending on what kind of analysis the researcher would like to achieve. In this respect discourse analysis represents an essential aid. By the use of the protocols recordings can be attained, transcribed and analyzed from different viewpoints. The protocols which can be used in order to obtain analyzable data are: picture description, storytelling, procedural discourse and the Famous People Protocol etc.

As there is no Romanian corpus uploaded in the AphasiaBank database the translation of the protocols, as part of my PhD thesis, seems to be a great idea in order to help Romanian aphasics recover their abilities to speak. The protocols have already been translated into Spanish, French and Japanese and used in researches. In the present I conduct my research in Tirgu Mures at the 1st and 2nd Clinics of Neurology, Mures County Emergency Hospital, after obtaining the consent from the Heads of the two Departments. Recordings have already been obtained by using the

protocols mentioned above. As to my knowledge no such research (linguistic) has been performed so far in Romania.

By this article I would like to raise the awareness of those researchers who might be interested in the investigation of aphasic patients' speech that discourse analysis is an aid in obtaining clear and concise information regarding aphasic speech.

Note:

1. John Oates, Andrew Grayson, *Cognitive and Language Development in Children*, Oxford, Blackwell Publishing, 2004, p.79.
2. Alfredo Ardila, *There are Two Different Language Systems in the Brain,* in *Journal of Behavioral and Brain Science,* vol.1, 2011, p. 23.
3. J. R. Binder, J. A. Frost, T. A. Hammeke, R. W. Cox, S. M. Rao and T. Prieto, *Human Brain Language Areas Identified by Functional Magnetic Resonance Imaging*, in *The Journal of Neurosciences*, vol. 17, no. 1, 1997, pp. 353.
4. N. Chomsky, *Aspects of the Theory of Syntax*, Cambridge, MIT Press, 1965.
5. Alexandra Ciocîrlan, Radu Drăgulescu, *Distorsionări ale comunicării. Cercetări de psiholingvistică*, Cluj Napoca, Casa Cărții de Știință, 2013, p.31.
6. Estrella Maria de Roo, *Agrammatic grammar:Functional Categories in Agrammatic Speech*, Hague,Thesus, 1999, p. 1
7. Radu Drăgulescu, *Psycholinguistic and neurolinguistics approaches on communication distorsions*, in *Globalization and intercultural dialogue : multidisciplinary perspectives* (ed.: Iulian Boldea), Tirgu Mures, Arhipelag XXI, 2014, p.100.
8. Patrick J. Gannon, *Evolutionary Depth of Human Brain Language Areas,* in *The Two Halves of the Brain: Information Processing in the Cerebral Hemispheres*, edited by Kenneth Hugdahl and René Westerhausen, Cambridge, MIT Press, 2010, p. 38.
9. Alfredo Ardila, *Aphasia Handbook*, Miami, Florida, USA, Florida International University, 2014, p. 15.
10. Antonio R. Damasio, *Aphasia*, in *New England Journal of Medicine*, vol. 326, no.8, 1992, p. 536.
11. Alfredo Ardila, *A proposed reinterpretation and reclassification of aphasic syndromes*, in *Aphasiology*, vol. 24, no. 3, 2010, p. 366.
12. Gerasimos Fergadiotis, Heather Harris Wright and Gilson J. Capilouto, *Productive vocabulary across discourse type*, in *Aphasiology*, vol. 25, no.10, 2011, p. 1261.
13. Ken Hyland and Brian Paltridge, *Introduction* in *Continuum Companion to Discourse Analysis*, edited by Ken Hyland, Brian Paltridge and contributors, Continuum International Publishing Group, New York, 2011, p. 1.
14. Ulatowska, K. Hanna, Gloria Streit Olness, *Discourse*, in R. D. Kent (Ed.), *The MIT encyclopedia of communication disorders*, The MIT Press, Cambridge, MA, 2004, p. 300.
15. Radu Drăgulescu, *Psycholinguistic and neurolinguistics approaches on communication distorsions*, in *Globalization and intercultural dialogue: multidisciplinary perspectives* (ed.: Iulian Boldea), Tirgu Mures, Arhipelag XXI, 2014, p.106.
16. Heather Harris Wright, *Discourse in aphsia: An introduction to current research and future directions*, in *Aphasiology*, vol.25, no.11, 2011, p. 1283-1285.
17. Gloria Streit Olness and Hanna K. Ulatowska, *Personal narratives in aphasia: Coherence in the context of use*, in *Aphasiology*, vol.25, no.11, 2011, p. 1393.
18. Roman Jakobson, *On aphasic disorders from a linguistic angle*, in R. Jakobson (Ed), *The framework of language*, Ann Arbor, MI: Univeristy of Michigan Press, 1980, p.95.
19. Brian Paltridge, *Discourse Analysis. An introduction*, Continuum, New York, 2006, p.2.
20. *Ibidem*, p.1.
21. Elizabeth Armstrong, *Aphasic discourse analysis: The story so far*, in *Aphasiology*, vol.14, no.9, 2000, p. 875-892.
22. Joseph E. Grimes, *The Thread of Discourse,* Paris: Mouton, 1975, p.7. Available online at: < https://goo.gl/sWFTaV >, viewed: August 21st, 2017.
23. Erin Wagenaar, Catherine Snow and Ronald Prins, *Spontaneous Speech of Aphasic Patients: A Psycholinguistic Analysis*, in *Brain and Language*, vol.2, 1975, p. 288.
24. Helen Bird and Sue Franklin, *Cinderella revisited: A comparison of fluent and non-fluent aphasic speech,* in *Journal of neurolinguistics*, vol 9, no. 3, 1996, pp. 187-206.
25. *Ibidem,* p. 203.
26. Jean Berko Gleason, Harold Goodglass, Loraine Obler, Eugene Green, Mary R. Hyde and Sandra Weintraub, *Narrative strategies of aphasic and normal-speaking subjects*, in *Journal of Speech and Hearing Research*, vol.23, 1980, p. 370-382.
27. Roelien Bastiaanse, Susan Irene Edwards and K. Kiss, *Fluent aphasia in three languages: Aspects of spontaneous speech*, in *Aphasiology*, vol.10, no.6, 1996, p.561-575.
28. M.A.K. Halliday, *An introduction to functional grammar*, London: Edward Arnold, 1985, p.3.
29. Hanna K. Ulatowska, Alvin J. North and Sara Macaluso-Haynes, *Production of narrative and procedural discourse in aphasia*, in *Brain and Language*, vol. 13, 1981, p. 348.
30. Sue Sherratt, *Multi-level discourse analysis: A feasible approach*, in *Aphasiology*, vol.21, no.3/4, 2007, p. 390.
31. Audrey Holland, *Observing functional communication of aphasic adults*, in *Journal of Speech and Hearing Disorders*, vol.47, 1982, p.50-56.
32. S. Schienberg & H. Holland, *Conversational turn-taking in Wernicke's aphasia*, in R. H. Brookshire (Ed.) *Proceedings of the Clinical Aphasiology Conference*, 1980, Minneapolis: BRK, p. 106-110. Available online at: <https://goo.gl/kVFQKP>, viewed: August 22nd, 2017.
33. Alison Ferguson, *Conversational turn-taking and repair in fluent aphasia*, in *Aphasiology,* vol.12, no.11, 1998, p. 1024.
34. H. Sacks et al, *A simplest systematics for the organization of tum-taking for conversation*, in *Language*, vol.50, no.4, 1974, p. 696.
35. Brian MacWhinney, Davida Fromm, *AphasiaBank as BigData*, in *Seminars in Speech and Language*, vol. 37.no.1, 2016, p. 11.

Bibliography:

Ardila, Alfredo. *A proposed reinterpretation and reclassification of aphasic syndromes*. In: *Aphasiology*, vol. 24, no. 3, 2010, p. 366.

Ardila, Alfredo. *There are Two Different Language Systems in the Brain.* In: *Journal of Behavioral and Brain Science,* vol.1, 2011, p. 23-36.

Ardila, Alfredo. *Aphasia Handbook*. Miami, Florida, USA, Florida International University, 2014, p. 15.

Armstrong, Elizabeth. *Aphasic discourse analysis: The story so far*. In: *Aphasiology*, vol.14, no.9, 2000, p. 875-892.

Bastiaanse, Roelien; Edwards, Irene, Susan; Kiss, K. *Fluent aphasia in three languages: Aspects of spontaneous speech*. In: *Aphasiology*, vol.10, no.6, 1996, p. 561-575.

Binder, J. R.; Frost, J. A.; Hammeke, T. A.; Cox R. W.; Rao, S. M.; and Prieto, T. *Human Brain Language Areas Identified by Functional Magnetic Resonance Imaging*. In: *The Journal of Neurosciences*, vol. 17, no. 1, 1997, p. 353-362.

Bird, Helen; Franklin, Sue. *Cinderella revisited: A comparison of fluent and non-fluent aphasic speech.* In: *Journal of neurolinguistics*, vol. 9, no. 3, 1996, p. 187-206.

Chomsky Naom. *Aspects of the Theory of Syntax*, Cambridge. MIT Press, 1965.

Ciocîrlan, Alexandra; Drăgulescu, Radu. *Distorsionări ale comunicării. Cercetări de psiholingvistică*. Cluj Napoca, Casa Cărții de Știință, 2013, p.31.

Damasio, R. Antonio. *Aphasia*. In: *New England Journal of Medicine*, vol. 326, no.8, 1992, p. 531-539.

Drăgulescu, Radu. *Psycholinguistic and neurolinguistics approaches on communication distorsions*. In: *Globalization and intercultural dialogue : multidisciplinary perspectives* (ed.: Iulian Boldea), Tirgu Mures, Arhipelag XXI, 2014, p. 96-109.

Fergadiotis, Gerasimos; Wright, Harris, Heather; Capilouto, J. Gilson. *Productive vocabulary across discourse type*. In: *Aphasiology*, vol. 25, no.10, 2011, p. 1261-1278.

Ferguson, Alison. *Conversational turn-taking and repair in fluent aphasia*. In: *Aphasiology,* vol.12, no.11, 1998, p.1007-1031.

Gannon, J. Patrick. *Evolutionary Depth of Human Brain Language Areas.* In: *The Two Halves of the Brain: Information Processing in the Cerebral Hemispheres*. Edited by Kenneth Hugdahl and René Westerhausen, Cambridge, MIT Press, 2010, p. 38.

Gleason, Berko, Jean; Goodglass, Harold; Obler, Loraine; Green, Eugene; Hyde, R. Mary; Weintraub, Sandra. *Narrative strategies of aphasic and normal-speaking subjects*. In: *Journal of Speech and Hearing Research*, vol.23, 1980, p. 370-382.

Grimes, E. Joseph. *The Thread of Discourse.* Paris: Mouton, 1975, p.7. Available online at: < https://goo.gl/sWFTaV >, accessed: August 21st, 2017.

Halliday, M.A.K. *An introduction to functional grammar*. London: Edward Arnold, 1985, p.3.

Holland, Audrey. *Observing functional communication of aphasic adults*. In: *Journal of Speech and Hearing Disorders*, vol.47, 1982, p. 50-56.

Hyland, Ken; Paltridge, Brian. *Introduction* in *Continuum Companion to Discourse Analysis*. Edited by Ken Hyland, Brian Paltridge and contributors, Continuum International Publishing Group, New York, 2011, p. 1.

Jakobson, Roman. *On aphasic disorders from a linguistic angle*. In: R. Jakobson (Ed), *The framework of language*. Ann Arbor, MI: Univeristy of Michigan Press, 1980, p. 95.

MacWhinney, Brian; Fromm, Davida. *AphasiaBank as BigData*. In: *Seminars in Speech and Language*, vol. 37.no.1, 2016, p.10-22.

Maria de Roo, Estrella. *Agrammatic grammar:Functional Categories in Agrammatic Speech*.Hague, Thesus, 1999, p. 1.

Oates, John; Andrew Grayson. *Cognitive and Language Development in Children*. Oxford, Blackwell Publishing, 2004, p.79.

Olness, Streit, Gloria; Ulatowska, Hanna K. *Personal narratives in aphasia: Coherence in the context of use*. In: *Aphasiology*, vol.25, no.11, 2011, p. 1393-1413.

Paltridge, Brian. *Discourse Analysis. An introduction*. Continuum, New York, 2006, p.2.

Sacks, H. et al. *A simplest systematics for the organization of tum-taking for conversation*. In: *Language*, vol.50, no.4, 1974, p. 696-735.

Schienberg, S.; Holland, H. *Conversational turn-taking in Wernicke's aphasia*. In: R. H. Brookshire (Ed.) *Proceedings of the Clinical Aphasiology Conference*, 1980, Minneapolis: BRK, p. 106-110. Available online at: <https://goo.gl/kVFQKP>, accessed: August 22nd, 2017.

Sherratt, Sue. *Multi-level discourse analysis: A feasible approach*. In: *Aphasiology*, vol.21, no.3/4, 2007, p. 375-393.

Ulatowska, Hanna K.; North, J. Alvin; Macaluso-Haynes, Sara. *Production of narrative and procedural discourse in aphasia*. In: *Brain and Language*, vol. 13, 1981, p. 345-371.

Ulatowska, Hanna K.; Olness, Streit, Gloria. *Discourse*. In: R. D. Kent (Ed.), *The MIT encyclopedia of communication disorders*, The MIT Press, Cambridge, MA, 2004, p. 300.

Wagenaar, Erin; Snow, Catherine; Prins, Ronald. *Spontaneous Speech of Aphasic Patients: A Psycholinguistic Analysis*. In: *Brain and Language*, vol.2, 1975, p. 281-303.

Wright, Harris, Heather. *Discourse in aphsia: An introduction to current research and future directions*. In: *Aphasiology*, vol.25, no.11, 2011, p. 1283-1285.