

Panel: Aphasia With and Without Adjectives  
Aphasia With and Without Adjectives

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I am a linguist involved in the study of aphasia. In this presentation I would like to express my views on the issue of aphasia with and without adjectives. I have to emphasize at the start that since I am not a clinician, I do not have to be concerned primarily with diagnostically classifying, but rather with describing the disorder, so my point of view might seem idiosyncratic to you. I hope that I will not confuse you when I propose the argument that approaching aphasia with and without adjectives are not opposite but complementary approaches and that each of them can be justified for different purposes.

In my own work in aphasia I view the disordered language from these two different angles. In defining the difference between these two approaches I would agree with Davis' interpretation that aphasia without adjectives (or the unidimensional view of language deficit in aphasia) captures the central nature of the disorder and its impact on all language modalities. On the other hand, aphasia with adjectives (or the multidimensional approach) simply adds more detail to the concept of central disfunction. It specifies that aphasia can assume qualitatively different forms because the language function is composed of multiple components interacting in production and comprehension of language. Thus, the unidimensional view specifies what is common among all instances of aphasia while the multidimensional view points out individual differences among instances of aphasia.

I will try to show you now how both approaches can be helpful in understanding the nature of aphasia. The unidimensional view rests on the fact that human language is a rule-governed behavior which has to be defined in terms of neurophysiological and psychological constraints. This in turn leads to the following observations.

First, linguistic disruptions in aphasia can be placed on a continuum from normal language to completely deranged language, because error types in aphasic language follow the same biological constraints as normal language patterns do. Thus, aphasic errors are often exaggerations of normal linguistic behavior. For example, it was pointed out by Schuell (1950) and again by Rinnert and Whitaker (1973) that there is considerable resemblance between the naming errors of aphasic subjects and the word associations given by normal subjects. Marshall (1977) argues that agrammatism in aphasia can be compared to an optional strategy used in normal language to produce telegraphic speech. In a study of spoken and written language, Ulatowska and colleagues (1979) observed similar patterns of errors in spoken and written language by aphasic and normal subjects, who both made a greater number of errors in written than in spoken language.

Second, similarities of aphasic disruptions in languages representing different structural types (the so-called linguistic universals of disruptions) are again reflections of the biological constraints on the form of human language. For example, in studies of agrammatism in English (Goodglass, 1976), Japanese (Panse and Shimoyama, 1973), Polish (Mierzejewska, 1977; Zarebina, 1973) and Ndebele (Traill, 1970), a Bantu language, all subjects displayed deletion and wrong distribution of grammatical morphemes, although these morphemes might occur in different positions in words in these different languages (as infixes in Japanese, prefixes in Ndebele, and suffixes in Polish and English).

Third, uniformity of error types and error directions in all types of aphasia within the same language are also related to these constraints, which limit the number and type of possible disruptions in aphasic language. Within the phonologic system, errors in aphasic speech reflect a systematic disorganization of phonology independent of a particular lesion type. For example, Blumstein (1973) observed that in all types of aphasia, errors in consonant clusters were more frequent than errors in simple consonants and that the most frequent phonemic errors were substitutions differing from each other by one distinctive feature. Similarly, Goodglass (1968) and Parisi and Pizzamiglio (1970) found that the hierarchy of difficulty of grammatical constructions does not differ between agrammatic and fluent aphasic individuals, in English or in Italian.

It has to be mentioned, however, that quantitative differences within these qualitatively similar error patterns, as pointed out by Blumstein in her phonological studies, might be related to different underlying mechanisms operating within different types of aphasia. That is, all of these facts pertain to observable or surface manifestations in language and should not be interpreted as being related to the same underlying mechanisms.

On the one hand, the findings reported above are an outcome of applying systematic analysis and using abstract units of analysis which allow us to reveal the similarities between superficially different structures. On the other hand, they reflect the limitations of our methodologies in tapping the mechanisms underlying these similar error types. This search for similarities in disrupted language, however, is extremely important since it provides us with global knowledge of aphasic language and illuminates the nature of human language. Due to its assumption of unidimensionality, however, the approach often leads to underestimating differences between types of aphasia, especially if quantitatively they are not striking.

Moving to the aphasia with adjectives approach, I also consider it to be an extremely important approach, especially for a linguist who exhibits a natural knack, often verging on compulsion, for looking at linguistic minutiae. Theoretically, the approach is derived from an assumption that linguistic components can be selectively impaired, depending on the particular lesion site. The dichotomy of anterior vs. posterior aphasia, which has survived under a variety of labels for nearly a century, is a logical place to start the argument. This dichotomy has reality to me on two accounts. As a listener, impressionistically, I can identify the speech of aphasic individuals belonging to the anterior as opposed to the posterior group, at least at the more impaired levels, in a way similar to how I can identify the speech of different dialects or languages. As a linguist, analytically, I can discern their different quality of language by examining their processing of two different pools of words; content words and function words. It was only after my initiation to aphasiology that I fully recognized the importance of these two different categories of words in characterizing the linguistic deficits of anterior and posterior aphasic individuals. The dramatic difference between the two linguistic categories made me feel comfortable with maintaining in my own view of aphasia the adjectives of anterior vs. posterior. It does not bother me at all that the difference is not discernable at all levels of aphasic impairment. It might be that we are not sophisticated enough to discern the evolutionary pattern of the difference at higher levels of linguistic functioning. We could not see it clearly in our studies of discourse of mildly and moderately impaired aphasic individuals, but it seems to be emerging in a promising way in our preliminary studies of

discourse of severely impaired aphasic individuals. To continue the argument, the difference between anterior and posterior aphasic subjects is important in that it allows us to delimit a population that in their linguistic behavior is more uniform than the aphasic population at large. By delimiting an aphasia type we can ask more specific questions as to the nature of particular deficits, and develop methodologies suitable for answering these specific questions.

In the remaining part of this presentation I would like to briefly describe how delimiting the scope of investigation to one type of aphasia, anterior, or Broca's aphasia, led to a considerable expansion of knowledge about that syndrome. Historically, Broca's aphasia was characterized by disrupted output with good comprehension. This difference in comprehension together with different processing of function as opposed to content words was seen as a major difference between Broca's and Wernicke's aphasic subjects. More recently, studies of language comprehension in Broca's aphasia highlighted the syntactic aspect of their deficit. The dissociation between lexical and syntactic aspects of comprehension was clearly demonstrated by Caramazza and Zurif (1976). Heilman and Scholes (1976) documented Broca's aphasic subjects' failure to exploit the structural information carried by articles, prepositions and inflections which is relevant to the recovery of the underlying relational structure. Subsequent study by Schwartz, Saffran and Marin (1980) showed failure of their Broca's subjects on passive voice sentences and even on active voice sentences with reversible locative statements. The interpretation of these findings is that agrammatic subjects have a syntactic mapping defect such that they cannot recover the relational structure of spoken sentences. In a parallel study of agrammatism in production of language, Saffran, Schwartz and Marin (1980) identified a deficit in that Broca's aphasic subjects could not with any consistency produce N V N order that reflects underlying semantic roles. The deficit was especially evident when the two nouns whose relation was to be discerned were alike in animacy. These findings led to a new interpretation of agrammatic speech--that agrammatic speech is generated without underlying structure that represents logical relations, and that instead the salient elements of a cognitive representation are mapped into language on a one to one basis. It is interesting that we tend towards the same interpretation of the performance of our agrammatic patients on discourse production. Another fascinating piece of information on agrammatic aphasic subjects was reported recently by Miceli, Mazzucchi, Menn and Goodglass (1983) based on a careful description of two Italian agrammatic patients. They concluded that the deficits of agrammatism can take different forms, i.e., be dissociable along the two axes of syntax and morphology. One patient in the study had a moderate syntactic deficit and a mild morphological deficit, while the other one exhibited an almost pure morphological deficit. Moreover, the two patients showed different evolution of the syntactic vs. morphological deficit, suggesting the existence of qualitative differences between morphology and syntax in agrammatic speech. Because of time limitations, I cannot give you a more detailed report on the specific hypotheses and the carefully controlled battery of tests used to test these hypotheses. The point that I want to make is that aphasia with adjectives is not dead and that it is gaining in strength as we are gaining in experience in tapping the variety of deficits. In the next two months I will be going to Poland to study discourse in Polish agrammatic aphasic subjects. I will be looking at their aphasia using both of the above described approaches; namely aphasia with and

without adjectives. I hope to be able to share the information with you next year, if I do not join Solidarity instead.

#### REFERENCES

- Blumstein, S. A Phonological Investigation of Aphasic Speech. The Hague: Mouton, 1973.
- Caramazza, A. and Zurif, E.B. Dissociation of algorithmic and heuristic processes in language comprehension. Evidence from aphasia. Brain and Language, 3, 572-582, 1976.
- Davis, A. Survey of Adult Aphasia. Englewood Cliffs, N.J.: Prentice Hall, 1983.
- Goodglass, H. Agrammatism. In H. Whitaker and H.A. Whitaker (Eds.), Studies in Neurolinguistics, 1, pp. 237-260. New York: Academic Press, 1976.
- Heilman, K.M. and Scholes, R.J. The nature of comprehension errors in Broca's, Conduction and Wernicke's aphasias. Cortex, 12, 258-265, 1976.
- Marshall, J.C. Disorders in the expression of language. In J. Morton and J.C. Marshall (Eds.), Psycholinguistic Series I. Developmental and Pathological, pp. 125-160. London: Paulk Elek (Scientific Books), 1977.
- Miceli, G., Mazzucchi, A., Menn, L. and Goodglass, H. Contrasting cases of Italian agrammatic aphasia without comprehension disorder. Brain and Language, 19, 65-97, 1983.
- Mierzejewska, H. Zaburzenia Polskiego Systemu Fonetycznego w Niektórych Wypadkach Afazii. Wrocław: Polska Akademia Nauk, 1977.
- Panse, F. and Shimoyama, T. On the effects of aphasic disturbance in Japanese: agrammatism and paragrammatism. In H. Goodglass and S. Blumstein (Eds.), Psycholinguistics and Aphasia, pp. 172-182. Baltimore: The Johns Hopkins University Press, 1973.
- Parisi, D. and Pizzamiglio, L. Syntactic comprehension in aphasia. Cortex, 6, 204-215, 1970.
- Rinnert, C. and Whitaker, H.A. Semantic confusions by aphasic patients. Cortex, 9, 56-81, 1970.
- Saffran, E.M., Schwartz, M.F. and Marin, O.S.M. The word order problem in agrammatism II. Production. Brain and Language, 10, 263-280, 1980.
- Schuell, H.R. Paraphasia and paralexia. Journal of Speech and Hearing Disorders, 15, 291-306, 1950.
- Schwartz, M.F., Saffran, E.M. and Marin, O.S.M. The word order problem in agrammatism I. Comprehension. Brain and Language, 10, 249-262, 1980.
- Ulatowska, H.K., Baker, T., Freedman-Stern, R. Disruption of written language in aphasia. In H. Whitaker and H.A. Whitaker (Eds.), Studies in Neurolinguistics, Vol. 4, pp. 241-268. New York: Academic Press, 1979.
- Zarebina, M. Rozbicie Systemu Językowego w Afazii. Wrocław: Polska Akademia Nauk, 1973.