

Editor's overview

With the publication in the present issue of AP of the article by Berndt and Caramazza on Broca's aphasia, we inaugurate the series of invited integrative review articles announced in the previous issue. This article, however, is not only an integrative treatment of a major topic in the field of adult language disorders; it is, in addition, a reassessment of the nature of Broca's aphasia and, among other things, an excellent example of how basic research and theory in psycholinguistics and related areas of cognitive psychology figure in the analysis of and research on an applied problem. Moreover, the perceptive reader will not fail to recognize the extent to which Berndt and Caramazza's treatment of Broca's aphasia elucidates our conception of normal language competence and performance.

Berndt and Caramazza's evaluation of the relevant literature led them to redefine Broca's aphasia "as a syndrome resulting from lesions in Broca's area, possibly extending slightly posterior . . . , with the following constellation of symptoms: labored and distorted articulation, agrammatism, asyntactic auditory comprehension, disturbed metalinguistic abilities at the syntactic level, and some reading deficits that may also involve syntactic processing." These symptoms are further refined into two groups, those having to do with speech output difficulties ("laborious and distorted articulation, a depressed rate of speech and a severe shortening of utterances"), and those involving the processing of function words ("agrammatic speech, asyntactic comprehension and metalinguistic abilities"). They then proceed to account for these symptoms "within the framework of a model of normal language processing" by proposing two primary deficits in Broca's aphasia – an impairment of "the syntactic parsing system" and the physiological mechanisms of speech articulation – and certain compensatory mechanisms. The syntactic deficit – "an impairment of language competence with respect to syntactic information" – is, moreover, considered to be the major factor responsible for the Broca syndrome.

The findings for right hemisphere damage, albeit tentative, contrast sharply with those for Broca's aphasia and, evidently, with the exception of left hemisphere semantic aphasia, with other types of left hemisphere damage as well. The results reported by Hier and Kaplan suggest that the subtle test-related language comprehension deficits that may go beyond the task of recovering the literal semantic propositional content of a simple sentence may sometimes accompany right hemisphere damage. Moreover, these investigators report associations between these subtle language comprehension deficits and certain visuospatial deficits that, in conjunction with the observed similarities between semantic aphasia and right hemisphere damage, lead them to speculate about the origin of the verbal

impairments. Their speculations, I suspect, may lead eventually, when more data become available, to a characterization of the deficits they observed in terms of certain fundamental nonlinguistic cognitive capabilities that are required for complex linguistic performance. The fact that the effects of right hemisphere damage are sometimes similar to the symptoms of left hemisphere semantic aphasia, may mean that these nonlinguistic cognitive capabilities are actually represented in both hemispheres.

There are children who are apparently not mentally retarded or suffering from sensory or neurological handicaps who develop language at an abnormally slow rate (in terms of both comprehension and production) even though the linguistic system they acquire and the course of their language development appear not to be abnormal. They demonstrate, in other words, what is usually referred to as language delay. A set of systematic criteria for selecting such children has been described by Tallal (e.g., Tallal et al., AP, 1980, 1, 49–64). A small group of such children who were identified by speech pathologists were the focus of investigation in the present preliminary studies by Shatz, Bernstein, and Shulman of the comprehension of indirect directives. Shatz's careful and productive research on communicative development in normal children, in particular the work that has focused on the normal child's listening strategies, constitutes the basic research foundation for the present studies. These authors observed quantitative differences characteristic of delay between their language impaired children and younger, normal children that had been studied earlier. They noted in particular that their language impaired children appeared "to be less able to generate informing responses when they (knew) such responses (were) called for." Moreover, they noted difficulties that they suggested "reflect problems in consistently processing multiple input sentences across time."

I found this last observation to be intriguing; should it be confirmed in future research with a variety of linguistic inputs and communicative contexts, one would want to then determine whether it plays any role in *producing* the delay that characterizes language development in the type of language impaired children studied by Shatz and her colleagues and others.

The article by Bruno and Harris falls under a rubric that I expect will be represented with increasing frequency in the pages of AP, that of the application of psycholinguistics and related areas of cognitive psychology to computer language design and the design (and dissemination) of such written and oral information as advertisements, product instructions, and documents. We hope soon to have an invited article in AP that will describe the recent work on the psycholinguistics of man-computer interactions. Document design, I should point out, is itself fast becoming a major area of study, as is clear from, for example, the fact that the American Institutes for Research (1055 Thomas Jefferson Street, N.W., Washington, D.C. 20007) has initiated *The Document Design Project* and the fact of the creation of an interdisciplinary doctorate in document design at Carnegie-Mellon University.

The study by Bruno and Harris was concerned primarily with the experimental validation of procedures that might eventually be applied to consumer education in the interpretation of advertising claims. In this investigation, furthermore, Bruno and Harris make systematic use of the findings of basic research on memory for asserted and implied aspects of linguistic input.

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