Proper and Common Nouns: Form Class Judgments in Broca's Aphasia

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Studies of agrammatic Broca's aphasics' comprehension of sentences containing articles have demonstrated profound deficits. It has not been clear whether the impairments are due to an inability to isolate the article in the stream of speech, or to difficulty in the construction and/or interpretation of various syntactic, semantic, or pragmatic levels of representation. This paper reports three experiments on Broca's aphasics' ability to distinguish between common nouns (e.g., "a rose") and proper nouns (e.g., "Rose"). This grammatical form class decision is signaled by the presence or absence of an article, and is represented at the

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lexical node level of linguistic analysis. The three experiments demonstrated that Broca's aphasics point to pictures representing classes of objects when asked to point to "the X" and point to pictures representing unique individuals when asked to point to "X". Thus, they were shown to be able to use the presence or absence of an article to determine lexical category. Their performance was especially accurate in an oral language context which was highly redundant and in a written language context where patients themselves could control the rate of information flow. They were quantitatively impaired, relative to controls, in a third study, which made higher information processing demands. Moreover, in this third study nonsense syllables preceding the noun which are phonologically similar to a known article were much more likely to evoke the misclassification of its noun as common than were phonologically distinct nonsense syllables. These data indicate that Broca's aphasics indeed have some difficulty isolating the article in the stream of speech. Nevertheless, detailed analyses of aphasics' performance revealed their ability to distinguish between common nouns and proper nouns even under these demanding conditions. Taken together, the three studies show that insofar as agrammtic patients are able to keep track of the presence or absence of articles, they can make a grammatical decision at the lexical node level of linguistic analysis. We conclude, then, that agrammatic Broca's aphasics are particularly impaired in the use of articles to construct and/or interpret phrasal constituents.   © 1986 Academic Press, Inc.

INTRODUCTION

Many studies have suggested that most patients who speak agrammatically are unable to carry out normal syntactic analyses for the purpose of sentence interpretation as well (cf. reviews by Berndt & Caramazza, 1980; Caplan, 1983; Goodglass, 1976; Zurif & Blumstein, 1978). The goal of the present study is to provide additional detail concerning this grammatical limitation. We present experimental observations of one delimited type of grammatical decision during sentence interpretation, namely, that concerning the form class distinction between common nouns (e.g., "a rose," the flower, and "Rose," the name of my mother-in-law). Since this distinction is signaled by the presence or absence of an article preceding the noun, we thereby focus on the processing of function words.

Numerous studies of agrammatic Broca's aphasics' language production have underlined these patients relative inability to phrasally integrate articles and nouns. One clinical reflection of this problem is that spontaneous agrammatic speech is rich in content words but scanty in functors (de Villiers, 1974; Goodglass, Hyde, & Blumstein, 1969; Wagenaar, Snow, & Prins, 1975). Moreover, in production and metalingustic tasks where patients are asked to complete or evaluate sentences, agrammatic subjects encounter considerable difficulty producing functors even in compulsory contexts and in considering functors in their judgments of sentences (Gleason, Goodglass, Green, Ackerman, & Hyde, 1975; Friederici, 1982; Kolk, 1978; Pastouriaux, 1984; Wales & Kinsella, 1981; Zurif, Caramazza, & Meyerson, 1972). Most pertinent to the present studies, however, are demonstrations that *comprehension* failures can be linked to an inability

to process function words. One such demonstration is found in Heilman and Scholes (1976). They presented Broca's aphasics with a pair of sentences which differed only in the placement of the article indicating the phrasal structure of a noun phrase (NP) (e.g., "She showed her baby the pictures" vs. "She showed her the baby pictures") The patients were to indicate which picture depicted each sentence. Agrammatic patients had considerable difficulty doing so. A second demonstration is the work of Goodenough, Zurif, and Weintraub (1977). In order to determine whether agramatic patients appreciate the distinction between a definite article (i.e., "the") and an indefinite article (i.e., "a"). Goodenough et al. presented their subjects with an array of geometric shapes (e.g., a black circle, a black square, and a white square) and asked them to point to a geometric figure named by the experimenter. On half of the trials, an anomalous request was made (for the above array, "Point to the black one," a request to identify an unique black item, which is anomalous because two black shapes were available). Neurologicaly intact control subjects appreciated the anomaly of this type of request, as indicted quantitatively by their increased reaction times when confronted with anomalous items and by their tendency to point to the geometic shape which shared its unnamed feature with the ineligible member (i.e., the black one of the two squares). Agrammatic patients failed to demonstrate either of these effects.

What both the Heilman and Scholes and the Goodenough et al. studies fail to specify, however, is the point at which processing fails. Consider first the Heilman and Scholes findings. Was it that the patients were unable to isolate the article as a segment of the input string? Or was it, rather, that they could not use the article to construct a phrasal constituent? This latter step is crucially a part of interpreting the Heilman and Scholes sentences, for, as Caplan (1983) has pointed out, the position of the definite article determines whether the supralexical category that dominates the following noun is a NP (as in "baby the pictures") or another noun (as in the compound noun–noun sequence "the baby pictures"). In effect, successful performance on the Heilman and Scholes task required at the very least the construction and interpretation of a phrasal node. The article in the Goodenough et al. study was crucially involved in a different manner. Specifically, it had to be processed at a pragmatic level—as a signal to choose that one of the arrayed objects that was uniquely identifiable. Was it, then, at this pragmatic level that the patients failed? Or, again, as might have been the case with the Heilman and Scholes method, was processing foreclosed by failure at an earlier stage—at the stage of isolating the article in the stream of speech?

In this paper we focus on early stages of processing. We do so by providing a situation in which successful performance depends only upon the ability to use the presence or absence of an article to make a decision

at the lexical node level of linguistic analysis, i.e., to distinguish a proper from a common noun. Preliminary evidence from Caplan, Matthei, and Giglev (1981) suggests that agrammatic patients may be able to make grammatical decisions at the lexical level. Their Broca's aphasics treated sentences like "Can you show Bill walking the dog," where "walking" is a verb, very differently from sentences like "Can you show Bill the walking dog," where "walking" is an adjective. The study of Heilman and Scholes contrasts crucially with that of Caplan et al., since in the former case changes in word order signal a change at the phrasal level of analysis while in the latter changes in word order signal a change in form class. If preserved comprehension can be demonstrated in the present studies, where a grammatical form class distinction turns on the presence or absence of an article, this would suggest that the problem of agrammatic comprehenders might not be that of keeping track of the article in the sequence of words in the input string, but rather one of subsequently using it to construct phrasal constituents and/or one of semantically or pragmatically interpreting phrasal constituents.

EXPERIMENT 1

Our first study was modeled on the developmental work of Katz, Baker, and Macnamara (1974). Imagine that you are shown a picture of a dog, of a breed you have never seen before. You hear: "This is a picture of my pet. He's called Pitta." Alternatively, you hear: "This is a picture of my pet. He's called a pitta." If in the former case you assume that "Pitta" is the name of the speaker's particular dog, and in the latter you assume that "pitta" is the name of the breed, then you have used the presence or absence of the article to categorize "pitta" as a proper noun or common noun, respectively. This is what the 17-month-old subjects in the Katz et al. study did, and this is what we asked of agrammatic patients in the first experiment.

Methods

   Subjects. Twelve high school-educated native English speakers with unilateral cerebral insult to the left hemisphere took part in this experiment. Each patient was in the age range of 35 to 60 years, and each had sustained his or her injury at least 1 year but not more than 3 years prior to testing. All but one of the subjects were right handed; the single left-handed patient demonstrated cerebral asymmetries similar to right handers, according to CT scan measurements, and did not differ from the others in his clinical and testing profiles. All but one of the subjects were male; all but one subject had sustained an ischemic stroke. The single woman and the single patient with a gun shot wound both resembled the other subjects in their test results as well. Patients were classified as moderately to severely agrammatic Broca's aphasics on the basis of clinical examinations by neurologists and neuropsychological test profiles on the Boston Diagnostic Aphasia Examination (Goodglass & Kaplan, 1972). These patients exhibited effortful, telegraphic speech composed of short utterances containing many content words but few functors. They had effective comprehension of single words and simple declarative sentences. Thus, our patients are representative of

the large subset of Broca's aphasics who speak agrammatically. The locus of the lesions—within the anterior region of the left hemisphere, including Broca's area—was established on the basis of CT scans.

It may be noted that control subjects were not examined on this task, since it proved trivially simple for subjects during pilot testing, as it is for 2-year-old children (Katz et al., 1974).

Procedure. Seven pictures of dogs were presented to each patient, one at a time, and each picture was named by the experimenter. Three of the pictures were labeled with a familiar common noun, as in "This is a picture of a collie." Three others were labeled with a familiar proper noun, such as "This is a picture of Duke." The remaining picture, presented as the fourth item, depicted an unfamiliar type of dog which was labeled with the nonsense word "pitta." The stimuli were presented to each patient in the same quasi-random order. For half of the agrammatic patients, chosen on the basis of a predetermined random order assignment, the unfamiliar looking dog was referred to with a common noun "a pitta," in the context: "This is a picture of my pet dog. He's called a pitta." The other half of the patients were exposed to the same picture with the proper name, "Pitta," as in the context: "This is a picture of my pet dog. He's called Pitta." In the former case, "pitta" refers to a type of dog, while in the latter case, "Pitta" refers to a unique individual, the experimenter's pet. These sentences were spoken in a slightly slowed fashion which attempted to preserve natural intonation contours. The series of seven pictures was presented and named for the subjects three times.

After the presentation phase, the seven pictures were laid out on a table in front of the subject. Three additional pictures to which the patients had not been previously exposed were laid out as well. One of these was a different instance of the unfamiliar breed of dog. In the test phase of the study, each patient was asked to point to the picture requested by the experimenter. There were nine trials in all, all subjects encountering the same, quasi-random order. On six trials, patients were asked to point to dogs with familiar common or proper names. On the 3rd, 6th, and 8th trials, the subjects were asked to point to "Pitta," or "a pitta," depending upon the initial exposure. If a patient pointed to the same picture of the unfamiliar dog in response to all three probes, he was asked if there was another picture of "pitta" or "a pitta" available.

If subjects correctly classify "pitta" as a common noun when the dog was referred to as "a pitta," then they should point to both examples of the breed as examples of "a pitta." Conversely, if they correctly classify "Pitta" as a proper noun when the dog was referred to as "pitta," then they should restrict their pointing to the individual to which they were exposed initially. Alternatively, if Brocas's aphasics cannot appreciate the lexical category distinction between proper and common nouns, and/or cannot make use of the presence or absence of an article to signal this distinction, then there should be no differences between the two groups of apasics in their responses to requests to point to "a pitta" or "Pitta," respectively.

Results and Discussion

Two of the patients could not point with 50% accuracy to the six known items, so these patients were eliminated from further consideration. Of the remaining subjects, five had been in the proper noun ("He's called Pitta") condition and five had been in the common noun ("He's called a pitta") condition. The patients all remarked upon the new noun when it was first presented. Either they repeated it, or they requested the experimenter to repeat it.

The result of note was that the two groups of patients clearly differed in the test phase. Those exposed to the proper noun "Pitta" restricted

their pointing to the original picture on all but one occasion—93% of the time. Thus, four of these five patients pointed only to the unique individual they thought to be the experimenter's pet. All five indicated on further questioning that there was another, similar looking dog, but only the dog to which they had pointed was Pitta. In contrast, each subject exposed to the common noun "a pitta" pointed to both pictures of the unfamiliar breed equally, as a group indicating the original picture only 46% of the time (the difference between the two groups of patients is significant at the $p < .01$ level, according to a t test; $t(8) = 21.88$). On several occasions, the patients in the common noun condition pointed to both instances of the unfamiliar breed on a single trial; those in the proper noun condition never did so.

These data show that agrammatic Broca's aphasics distinguish between proper and common nouns, know that the former refer to unique individuals while the latter refer to classes, and can use the presence or absence of an article to classify a newly heard noun as either proper or common. However, this study was designed to put minimal information processing demands on the subject. Each patient heard "pitta" six times, three times in the introductory phase of the study and three times in the test phase. Further, the experimenter spoke slowly, slightly emphasizing the article in the common noun condition. Thus, the patients' success in this study does not provide much insight into the failures of Broca's aphasics on the other comprehension tasks reviewed above. These failures could be due to difficulties at some stage in the processing of speech later than the establishing of lexical categories—e.g., in the construction or interpretation of *phrasal* constituents. Alternatively, they could be due to greater information processing demands, such that the patient is unable to isolate the article in the speech stream. In Experiment 2 we attempt to address this issue more directly by placing greater information processing demands on the subjects. Experiment 2 also begins to assess the adequacy of agrammatic patients' on-line representations of articles.

EXPERIMENT 2

Experiment 2 takes advantage of the fact that there are several familiar English nouns which are ambiguous with respect to their syntactic subcategorization as proper or common. Examples are "rose," "bill," and "jack." In speech, these are disambiguated by the presence or absence of an article preceding the noun. Experiment 2 assesses whether agrammatic Broca's aphasics can use this cue to distinguish the common noun, e.g., "a rose," from the proper noun, e.g., "Rose," in the rapid, on-line processing required by normal oral speech. Also, Experiment 2 assesses how precisely agrammatic aphasics represent articles encountered in normal oral speech. On some trials the ambiguous noun is preceded by a nonsense syllable instead of an article, e.g., "ba rose" or "thoo rose."

These nonsense syllables varied in the degree to which they phonologically resemble known English articles.

Methods

Subjects. Five of the subjects who had taken part in Experiment 1 participated in Experiment 2. For each subject at least 1 year intervened between the two studies. In addition, five non-brain-damaged volunteers, out-patients at the Boston Veterans Administration Medical Center matched for age, sex, and education with the aphasics, served as control subjects.

Procedure. We identified 26 familiar nouns which were ambiguous with respect to their form class subcategorization as proper or common, and in which the frequencies of occurrence as common or proper nouns were sufficiently similar so as not to bias patients' performance. Each noun could appear in one of three sentential frames: For example: "Point to the picture of Rose," "Point to the picture of a rose," or "Point to the picture of ba rose." There were six nonsense syllables. Half began with a stop consonant and therefore did not resemble any English article (e.g., "ba"). The other half more closely approximated English articles, consisting either or a single vowel (e.g., "oo") or of a vowel preceded by the voiced "th" of "the" (e.g., "thoo"). Cards illustrating the three possible responses were prepared for each noun—that is, a picture of the referent of the common noun (e.g., a rose), a picture of a likely referent of the proper noun (e.g., for "Rose," a picture of a woman), and the word "neither."

A trial consisted of a request to point to one of the three cards. Requests were presented once, orally, by tape recorder. They were spoken at a natural speech speed with normal intonation and stress contours. A single repetition of an item was allowed, but patients requested a repetition only 7% of the time, and changed their response on less than a third of these. Each patient received three blocks of 26 trials each, one for each of the 26 ambiguous nouns. In each block approximately one-third of the nouns were placed in each of the three types of frames. Over the three blocks the patient heard each noun in all three of the sentential frames. Subjects encountered the same random order in each block of items, but the order of presentation of the blocks varied across subjects in a predetermined random fashion.

A training and practice session preceded the experimental session. Subjects were taught to point to pictures of objects on the basis of instructions similar to those used during the experiment. Some of these items required subjects to make a simple phonemic discrimination (e.g., between "bat" and "cat"). Subjects also demonstrated their ability to point to a picture of a man or a woman on the basis of the gender of the proper name used in the instruction. Finally, patients were taught to point to "neither" when the object mentioned in the instruction was not an alternative or when a nonsense word was included in the instruction. None of the patients exhibited any apparent difficulty with these procedures.

Results and Discussion

Control subjects were essentially flawless on this task. They pointed to the picture of the object every time they heard the common noun, to the picture of the person every time they heard the proper noun, and almost always to "neither" when they heard a nonsense syllable preceding the noun (89%). The agrammatic patients, in contrast, made many errors. A three-way analysis of variance was carried out, with group (aphasics vs. controls) as a between-subjects variable and with stimulus phrase (proper noun, common noun, noun preceded by a nonsense syllable) and block (three different blocks of trials) as within-subject variables. There

was no main effect of block, nor any interaction of block with any other variable. The main effect for group was significant ($f(1,8)$ = 217.94, $p < .001$). Agrammatic Broca's aphasics were significantly less effective than control subjects at this task. A significant main effect for stimulus type was also found ($F(2,16)$ = 15.73, $p < .01$). The common nouns more successfully elicited correct responses than did proper nouns or nouns preceded by nonsense syllables. A significant two-way interaction of group × stimulus type showed that the main effect for stimulus type is attributable solely to the agrammatic patients' performance ($F(2.16)$ = 8.58, $p < .01$). Agrammatic patients performed at inferior levels to controls when pointing in response to proper noun stimuli (51% vs. 100%: $t = 10.3$, $p < .01$) and nonsense stimuli (44% vs. 89%: $t = 4.6$, $p < .01$) but not when pointing in response to a common noun (93%) vs. 100%).

An examination of the error patterns provides a more precise accounting of the data. As can be seen in Table 1, the agrammatic patients pointed to the object significantly more often in response to a common noun that to a proper noun ($\chi^2 = 22.84$, $p < .005$). They also pointed to the picture of the person significantly more often in response to a proper noun than to a common noun ($\chi^2 = 54.67$, $p < .005$). Thus, although they were clearly less than normally sensitive to the absence of the article, they also demonstrated some ability to distinguish appropriately between a common noun and a proper noun. It may also be noted at this point that analyses of individual patients' performance profiles indicate that this characterization of the group's performance accurately reflects the performance of each of the patients we examined (see Table 1).

TABLE 1
BROCA'S APHASICS' RESPONSES

Type of stimulus phrase	Type of response	$\bar{x}$	SD	Patient				
				d'A	Ly	Be	Sh	Ma
Common noun		91	11.75	96	96	69	96	92
Proper noun	Object	49	10.72	62	58	35	46	54
Nonsense syllable		48	23.11	27	73	23	69	46
Common noun		8	11.75	4	4	31	4	8
Proper noun	Person	50	10.92	36	42	65	50	46
Nonsense syllable		8	6.02	4	0	15	8	12
Common noun		0	0	0	0	0	0	0
Proper noun	Neither	1	2.00	2	0	0	4	0
Nonsense syllable		44	20.51	69	27	62	23	42

Note. Data are given as percentage of responses.

An examination of patients' responses to items where a nonsense syllable preceded the noun reveals that the picture of the object was chosen on about 48% of the trials, and "neither" was selected on approximately 44% of the trials, both chosen clearly more often than the picture of the person (8%). Agrammatic patients were significantly more likely to treat the noun as a common noun as the substituted syllable resembled the known article more closely ($t = 3.58$, $p < .05$). That is, syllables like "thoo" or "oo" preceding a noun were more than twice as likely to result in patients pointing to the object than a syllable like "ba," which is more clearly differentiable from an article in virtue of its initial stop consonant.

A final analysis revealed that error rate was not affected by differing frequencies of occurrence of the nouns as proper or common. Although we had tried to select pairs of nouns where the frequencies were closely matched, we could still divide the pairs of common and proper nouns into three groups: the first consisted of 8 nouns where frequency as the common noun was essentially equal to frequency as the proper noun, the second consisted of 7 nouns where frequency as the common noun was slightly greater than frequency as the proper noun, and the third consisted of 11 nouns where frequency as the proper noun, according to Carroll, Davies, and Richman (1971). The proportions of errors were essentially identical, regardless of the relative frequenies of occurrence.

These data support two conclusions. First, the patients performed distinctly better than chance. They treated the two types of nouns differently, pointing to the picture of an object more often than to a person when presented with a common noun, pointing to a person more than to an object when presented with a proper noun, and pointing to "neither" only when presented with the noun preceded by a nonsense syllable. The conclusions of Experiment 1—that agrammatic aphasics represent the distinction between proper and common nouns, and can use the presence or absence of an article to subcategorize a noun—are corroborated. Second, when presented with rapid, nonredundant speech, agrammatic patients have difficulty encoding articles. This is shown by their substantial overall error rate and by their tendency to take nonsense syllables that resemble articles phonologically as signaling a common noun. These findings are consistent with those of Swinney, Zurif, and Cutler (1980), indicating selective difficulty monitoring for unstressed closed class words in normal speech.

In the next experiment we report on data obtained in a situation in which real-time processing demands are minimized. This is achieved by presenting the instructions in written form.

EXPERIMENT 3

Experiment 3 was essentially identical to the previous study except that the instructions were written rather than tape recorded. Under these

conditions, patients themselves can control the rate of information flow. If agrammatic Broca's aphasics are able to use the presence or absence of the article to subcategorize nouns, and if their difficulties in Experiment 2 were due to on-line processing difficulties, then performance should improve when the picture pointing requests are presented in writing.

Methods

Subjects. Five right-handed high school-educated native English speakers with unilateral cerebral insult to the left hemisphere, including Broca's area, served as subjects. Four of these patients had taken part in Experiment 2, so the present study was adminstered 6 or more months after the preceding study. The fifth subject resembled the other four in being a prototypical agrammtic Broca's aphasic, as demonstrated by clinical examinations of neurologists and performance profiles on the Boston Diagnostic Aphasia Examination. All five patients' oral reading was fairly accurate, although they omitted some functors. Our clinical impression was that the frequency of errors depended mostly upon the patients reading rate. Due to the control subjects's excellent performance in the oral procedure of Experiment 2, we did not consider it necessary to reexamine control subjects under written conditions.

Procedure. Eighteen of the 26 ambiguous nouns used in Experiment 2 were orthographically identical as proper and common nouns (e.g., "Rose"). These were chosen for the present study. The design of Experiment 3 was the same as that of Experiment 2 except that the requests for pointing were written. The sentences were printed in block letters, each sentence on a separate card, and presented one at a time to the patients. They were asked to read the sentence out loud, and were corrected by the experimenter if a mistake was made (this occurred rarely). They were encouraged to take their time before responding. As in Experiment 2, the response required was a point to the object named by the common noun, the person of the same gender as the proper noun, or the card marked "neither" in the case of the noun preceded by a nonsense syllable.

A training procedure preceded each experimental session, identical in all regards (except for the instructions being written) to the training described in Experiment 2. Adequate performance on this training procedure guaranteed that patients could read, as well as that they understood the task. None of the subjects evidenced any difficulty during training.

Results and Discussion

Performance was essentially flawless. The patients pointed to the picture of the person much more often in response to the proper noun (92%) than to the common noun (5%) and they pointed to the picture of the object much more often in response to the common noun (95%) than to the proper noun (8%). Moreover, they always (100%) pointed to "neither" in response to an item containing a nonsense syllable. In sum, the removal of the on-line processing demand of Experiment 2 significantly assists agrammatic patients in their ability to use the presence or absence of an article to discriminate between proper and common nouns.

GENERAL DISCUSSION

Experiment 1 showed that agrammatic Broca's aphasics can use the presence or absence of an article to correctly subcategorize a newly heard noun as proper or common. Experiments 2 and 3 showed that

these patients can use the presence or absence of an article to disambiguate homophones in which one member of the pair is a common noun and the other a proper noun. Taken together, these studies establish that agrammatic patients represent both the syntactic and semantic distinctions between proper and common nouns, and recover these representations in the course of comprehension. Experiment 2 also established that under conditions of normal rates of speech, when each word is heard only once, agrammatic Broca's aphasics have difficulty with the task. They are confused by nonsense syllables preceding nouns, especially if those nonsense syllables phonologically resemble articles. This difficulty is most probably related to deficits in the ability to detect unstressed, closed class words in normal speech (Swinney et al., 1980).

Are we to conclude that previous demonstrations of impaired processing of articles during comprehension (e.g., Heilman & Scholes, 1976; Good-enough, et al., 1977) result from difficulties in isolating the article during on-line processing? Certainly this is part of the problem, but we do not think it is the whole story. It must be remembered that for the most part Broca's aphasics are as agrammatic in their reading comprehension as they are in their oral language comprehension (e.g., Gardner, Denes, & Zurif, 1975; Grossman, 1982). For example, when given written instructions, agrammatic Broca's aphasics did not improve their appreciation of the pragmatic force of the distinction between "a" and "the" over their performance on the oral version of the Goodenough et al. (1977) task (Zurif & Garrett, unpublished data). Similarly, Grossman (1982) found that their ability to solve problems involving grammatical contrasts signaled by closed class vocabulary (e.g., "Jane kicked Dick." Who was kicked?) did not improve given the same manipulation.

It seems to us that the essential difference between the present and the earlier studies turns on the level of linguistic representation at which the information inherent in the article is critical. In the study of Heilman and Scholes (1976), the distinction between pairs of sentences such as "She showed her the baby pictures" and "She showed her baby the pictures" is evident only at the phrasal level. Similarly, the pragmatic distinction between "a black one" and "the black one" (Goodenough et al., 1977) is computed from a representation of the NP. So too, the distinction between "Who was kicked?" and "Who did the kicking?" is represented at the sentential level, even though it is signaled by closed class morphemes. In contrast, the distinction probed in the present study, between "a pitta" and "a rose," on the one hand, and "Pitta" and "Rose," on the other, is drawn at the *lexical* level of representation.

In conclusion, our data suggest that previous demonstrations of the inability of agrammatic patients to process articles attest to disruptions, in addition to the stage of initially apprehending the article, in processes involved in the formation or interpretation of *phrasal* configurations.

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