Word Retrieval Strategies of Aphasic Adults In Conversational Speech

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Word retrieval difficulties are a cardinal symptom of aphasic involvement. Among the various terms used to describe aphasics' word retrieval efforts are word finding difficulty, anomia, amnestic aphasia, semantic aphasia and others. Although such terms imply that word retrieval problems result from a reduction in the aphasic's lexical store, there is also reason to believe that the inability of the patient to evoke the desired word is due to an underlying loss in the efficiency of the retrieval process itself. Luria (1972) explains the problem of word retrieval as a breakdown in the "rule of force" whereby strong and weak stimuli evoke equa-potential responses so that no selective organization of the relevant associational processes is possible. Regarding the effects of this breakdown on language usage, Luria points out that speech is a highly selective multi-dimensional matrix whereby each word elicits a complex of associations of phonetic, morphological and semantic nature. For the aphasic, he hypothesizes that all associations of a given matrix are evoked with an equal probability so that the choice of the proper association becomes difficult or blocked out entirely.

Schuell (1964) also emphasizes the importance of the associational processes to the problem of word retrieval in aphasia. She indicates that for aphasics, given stimuli may activate only portions of associational clusters and that the integrity of these clusters mediate the errors made by the patient. Schuell and Jenkins (1961) were able to illustrate an inverse relationship between the number of semantic association errors and total errors made by aphasics on a naming task. Such a finding would seem to suggest that when the aphasic makes errors, we as clinicians, hope they will be associational, and that these will in turn help the patient produce the desired word. Traditional therapeutic techniques in which the aphasic gives opposites, rhyme words, supplies synonyms or completes carrier phrases would seem to imply that activation of associational clusters will somehow enhance his ability to retrieve the word he wishes.

For the most part studies of word retrieval problems of aphasics have utilized confrontation naming tasks (Bisiach, 1966; Goodglass et. al., 1966; Benton, 1972). Subjects have usually been asked to recall the names of objects or pictures (usually nouns) under a variety of stimulus conditions. While some writers (Geschwind, 1967) have speculated that confrontation naming comprises a different task than when the aphasic attempts to produce the same word in conversation, there is no experimental evidence to support this view. Transcriptions of aphasics' connected speech suggest, however, that aphasics have problems retrieving all kinds of words. Furthermore, analyses of aphasics' connected speech protcols (Schuell, et. al., 1964; Wepman et. al., 1965) indicate that not only is recall of specific elements difficult, but aphasics also have problems retrieving the necessary syntactical

rule to appropriately sequence the elements they use. Such observations are highly supportive of the views of Schuell (1964, 1973) who considered the retrieval of words and the retrieval of rules for combining them to be interdependent and intimately related processes.

The near exclusive use of naming tasks to explore word retrieval difficulties in aphasics has tended to limit our knowledge of those mechanisms that underlie the problem. In general most studies have been concerned only with whether or not the patient produced the appropriate word, not how he achieved success or why he failed to do so. Practicing clinicians readily recognize that aphasic patients may employ different strategies or behaviors to produce a desired word or to convey a particular thought. Aphasics, and to a much lesser extent, normal speakers may revise, demonstrate or gesture, associate, or describe what they are talking about. Berman and Peele (1967) have indicated that some of these strategies may be useful to the aphasic in "triggering" the desired response whereas others may inhibit it. It therefore appears that a descriptive investigation of the types of word retrieval strategies employed by aphasics and the extent to which these strategies are successful would be worthwhile for two reasons. One, such information might be helpful in determining the organizational patterns of language processes within the brain. And two, such analyses might yield information that could be used to increase the efficacy of certain treatment procedures employed with the aphasic. Accordingly, the purpose of this study were (1) to identify the types of word retrieval strategies employed by aphasic adults in conversation and (2) to ascertain the relationship of these strategies to the "triggering" of appropriate responses in conversation.

METHODS AND PROCEDURES

Cumulative records of the word retrieval difficulties exhibited by six aphasics in conversational speech were collected over a three month time period. For the purposes of this study a word retrieval difficulty was defined as "a situation whereby the aphasic, unprompted by the clinician, acknowledges that he is unable to retrieve a word and makes some effort either successful or unsuccessful, to produce the word without assistance from the clinician." Data were collected within the individual treatment sessions of aphasics seen at the Portland Veterans Administration Hospital. Each instance of word retrieval difficulty was transcribed directly or taken from tape recordings made during the session. These data were subsequently recorded on individual cards and when a sufficient number of data had been collected the cards were sorted in terms of whether or not the patient had been successful in his effort and the type of strategy used to produce the desired word.

RESULTS

At this point this investigation is in its embryonic stages and reported results should therefore be regarded as tentative. To date, data have been collected on six aphasics and some 350 instances of word retrieval difficulty have been recorded.

Strategies Identified. At this point four general word retrieval strategies can be reliably identified. These are defined as follows:

DELAY: The patient takes or requests extra processing or formulation time. "It's my first, just a minute, um, wait a second and I'll get it, oh anniversary." While some degree of delay is certainly inherent in all word retrieval efforts, here the aphasic requests more time or uses a filled or unfilled pause to let us know he is not ready to relinquish the conversational ball.

ASSOCIATION: The aphasic produces a word or series of words which are semantically related to the desired word. "I was working a crossword puzzle, no, a jigsaw puzzle." Such associations usually include synonyms, opposites, rhymes and other words associated semantically with the disired word.

DESCRIPTION: The aphasic attempts to produce the desired word by describing what he is talking about. "It's a small Pontiac, four doors, eight cylinders, a Tempest." While there are certainly associational connotations in description the patient is clearly attempting to tell something about the desired word and ordinarily uses more words and revisions in doing so.

GENERALIZATION: Here the aphasic uses "empty" or general words to produce the desired word. "It's in the deal, you know the thing, what do you call it?"

Figure 1 shows the number of times the four strategies were used by the six subjects of this study. Also shown in the figure is the number of times the strategy was successful in helping the subject produce the desired word. As seen in Figure 1 association and description were by far the most frequently used strategies for the six subjects. In terms of success, however, these approaches were successful only about 50% of the time. By far the most successful approach was that of delay. By far the most unsuccessful was that of generalization.

Figures 2, 3, 4, and 5 show the number of times the various strategies were employed by individual patients and the number of times the strategy was successful. To provide some indication as to the relationship between severity of aphasia and use of particular retrieval strategies, subjects are ranked in terms of severity (1=least severe) on the abcissa of each graph. Delay, as seen in Figure 2 was only used by the higher level patients. As mentioned earlier, this approach, for those patients using it, was highly successful. The associational strategy, as seen in Figure 3, was employed by all subjects. Higher level subjects tended to use approximately the same number of associations as lower level subjects but tended to be more proficient in using associations to evoke a desired word. Figure 4 shows that all subjects also used the description strategy but that the approach was successful only half the time and only for the higher level aphasics. As seen in Figure 5 higher level subjects rarely used the generalization approach. Lower level subjects on the other hand used generalization more frequently but were never successful in producing the intended word with this method.

DISCUSSION

Although only a limited amount of data has been collected in this project so far, it does seem evident that the associational processes play a vital role in aphasics' word retrieval efforts. It is possible to arrange the strategies identified in this study in a hierarchical pattern of efficiency. In using the most effective approach, that of delay, the aphasic seems to be saying "I've got the word on the tip of my tongue and I'll get it soon." In using the association and descriptive approaches, the patient may be saying "I have some words related to the intended word or I can tell you what I mean." Finally when using generalization the aphasic may be saying "I don't have the word" while making a plea for the clinician to supply it for him.

It also appears that the strategies employed and the degree to which they are successful relate strongly to severity of aphasia. Delay, a successful approach, was only used by higher level aphasics. Generalization, an unsuccessful technique, was primarily used by the lower level subjects. Assocation and description were used by all subjects but far more successful for the higher level patients.

It was interesting that subjects did a great deal of negating in their word retrieving attempts. At times the patient would deny an association before he produced it, such as "I went through, not high school, but college." Some patients tended to also associate on a phonetic level. For example, one aphasic said "I'm glad Mooten, Booten, Wooten, Wooden went out a winner," referring to John Wooden, UCLA basketball coach. This is clearly different than his saying "I'm glad UCLA, basketball, John Wooden went out a winner." At times patients tended to move through a series of associational approximations like the aphasic who said "I have to go out, next door, to the potty, to the bathroom." For words frequently produced in a series, subjects tended to work their way through the series such as "The car cost one, two, three, four thousand dollars." At times subjects used a gesture to accompany their retrieval effort. When possible, lower level patients tended to directly demonstrate (by touch or pointing) that they knew a particular word. It was interesting that among the more difficult words to retrieve were "crutch," "brace," "stroke," "arm," and "leg" and terms relating to the body or to illness. Sometimes subjects became annoyed when they could not produce a particular word and were reluctant to move on with their conversations. One subject trying to come up with the book title "Hatter's Castle" returned to the clinic after a week's absence and produced the word. He had retrieved it while drinking beer in a tavern and opportunistically had the barmaid write it down so he would not forget it.

This presentation has been based on a project that is still in its beginning stages and hopefully, as this point, raises more questions than answers. A knowledge of the mechanisms underlying word retrieval difficulties of aphasics appears necessary to the understanding of the language problem that is aphasia. Our task oriented research has only begun to scratch the surface in this area and it appears that there is a great deal more research to be done before the problem of word retrieval can be fully understood.

REFERENCES

Benton, A.L., Smith, K.C., and Lang, M. Stimulus characteristics and object naming in aphasic patients. J. Communication Dis. 5: 9-14. 1972.

Berman, M., and Peele, L.M. Self-generated cues: A method for aiding aphasic and apractic patients. J. Speech Hearing Dis. 32: 372-376, 1967.

Bisiach, E. Perceptual factors in the pathogenesis of anomia. Cortex 2: 90-95, 1966.

Geschwind, N. The varieties of naming errors. Cortex 3: 449-463, 1967.

Goodglass H., Klein, B., Carey, P., and Jones, K. Specific semantic word categories in aphasia. Cortex 2: 74-89, 1966.

Luria, A.R. Aphasia reconsidered. Cortex 8: 34-40, 1972.

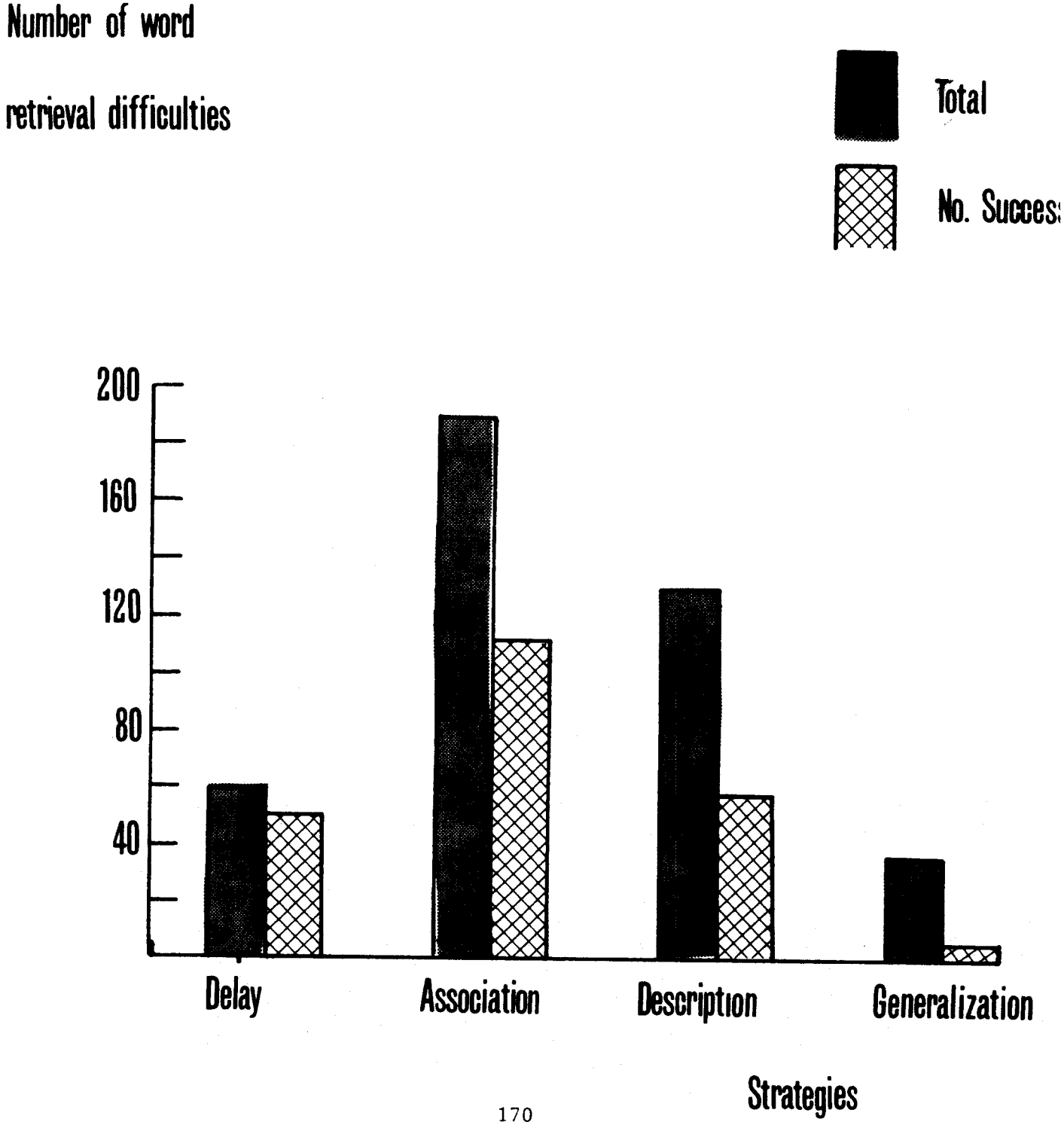
Schuell, H.M. and Jenkins, J.J. Reduction of vocabulary in aphasia. Brain 84: 243-261, 1961.

Schuell, H.M., Jenkins, J.J., and Jiminez-Pabon, E. Aphasia in adults. Harper and Row Publishers, Hoeber Medical Div., 1964.

Schuell, H.M. Aphasia theory and therapy. (L Sies ed.) University Park Press, 1974.

Wepman, J.M. and Jones, L.V. Aphasia: Diagnostic description and therapy. In Stroke Rehabilitation, basic concepts and research trends. (Fields and Spencer eds.) Warren H. Green Pub., St. Louis, MO, 1965

Figure 1. Number and types of word retrieval strategies used by aphasic adults.



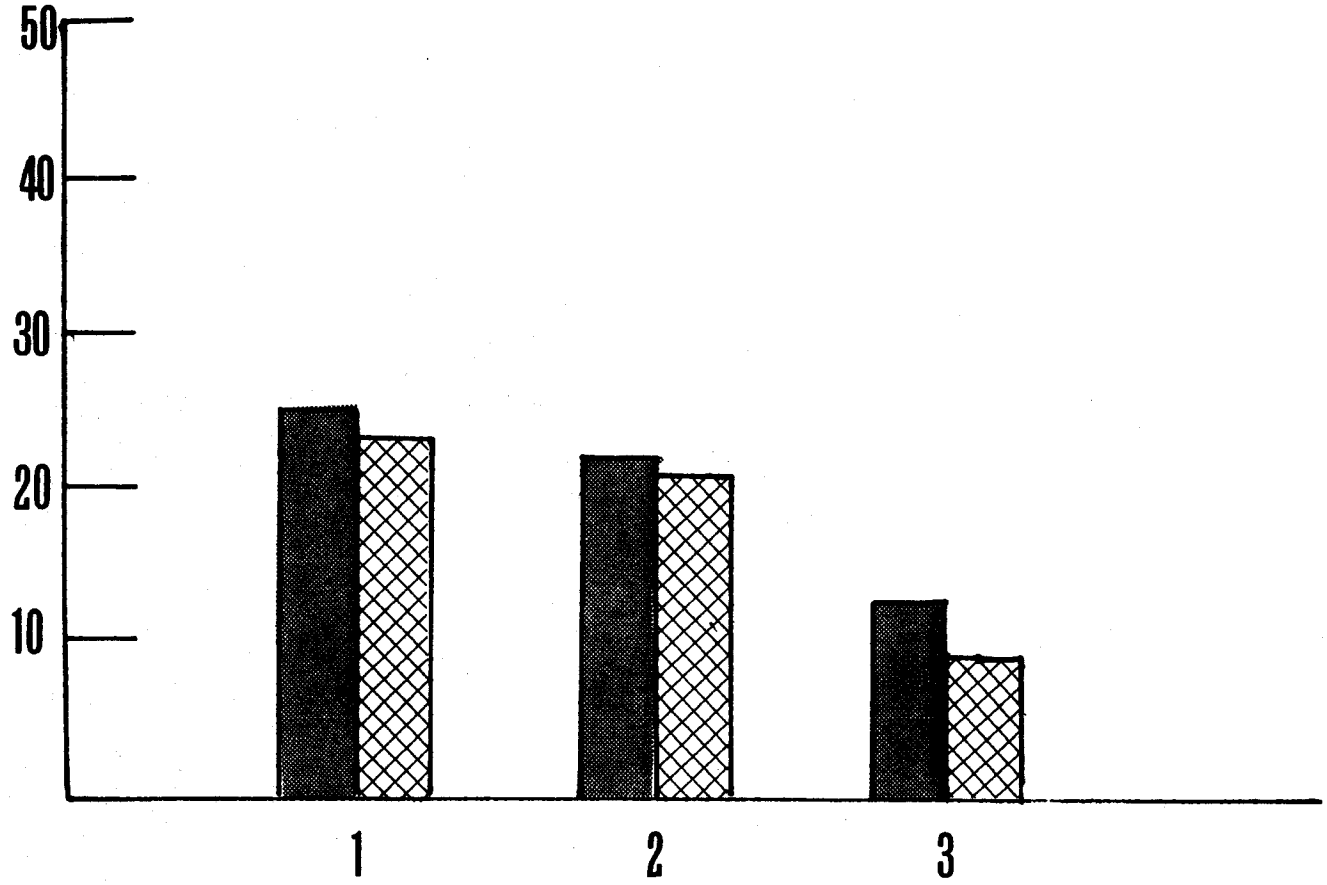


Figure 2. Use of delay strategy for individual subjects.

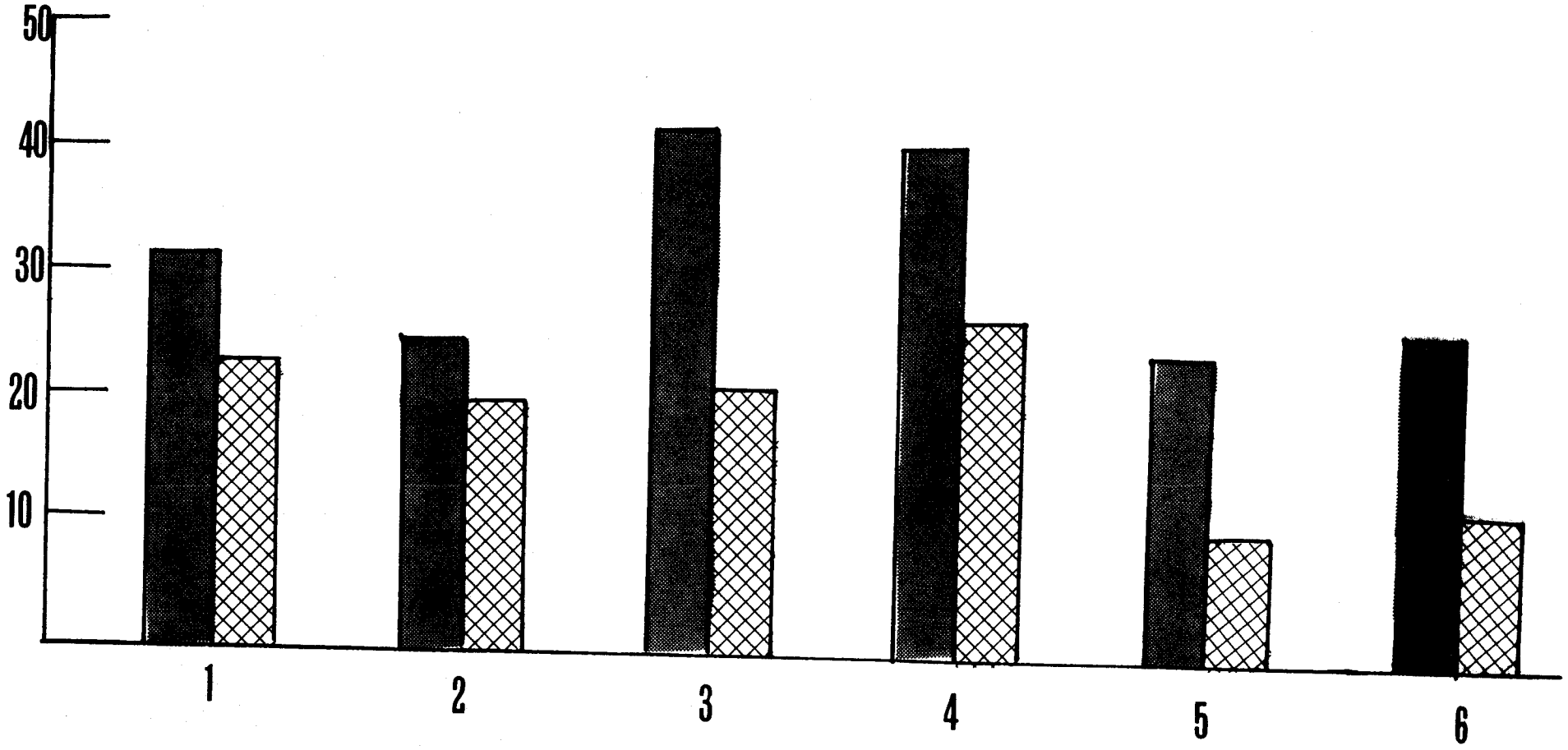


Figure 3. Use of association strategy for individual subjects.

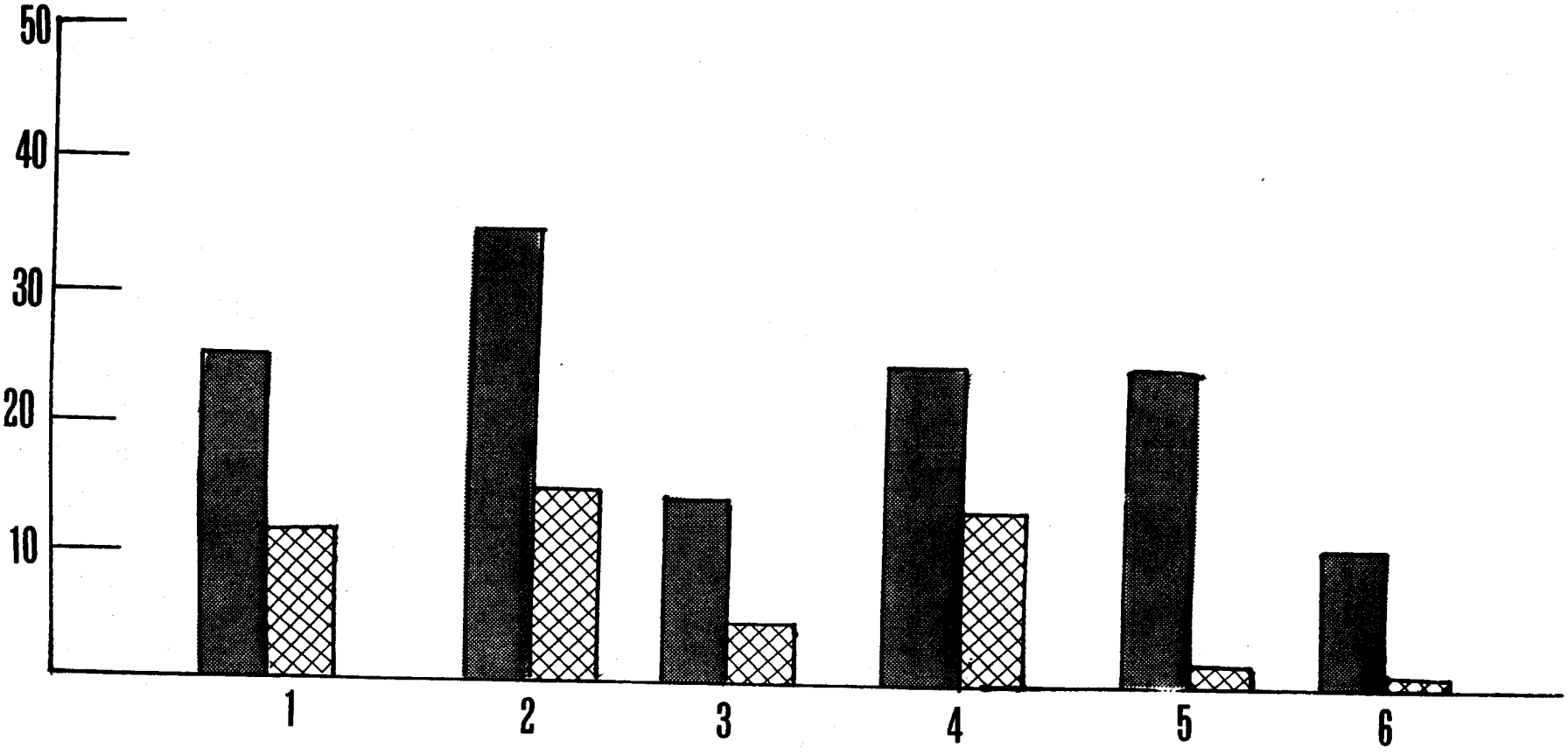


Figure 4. Use of description strategy for individual subjects.

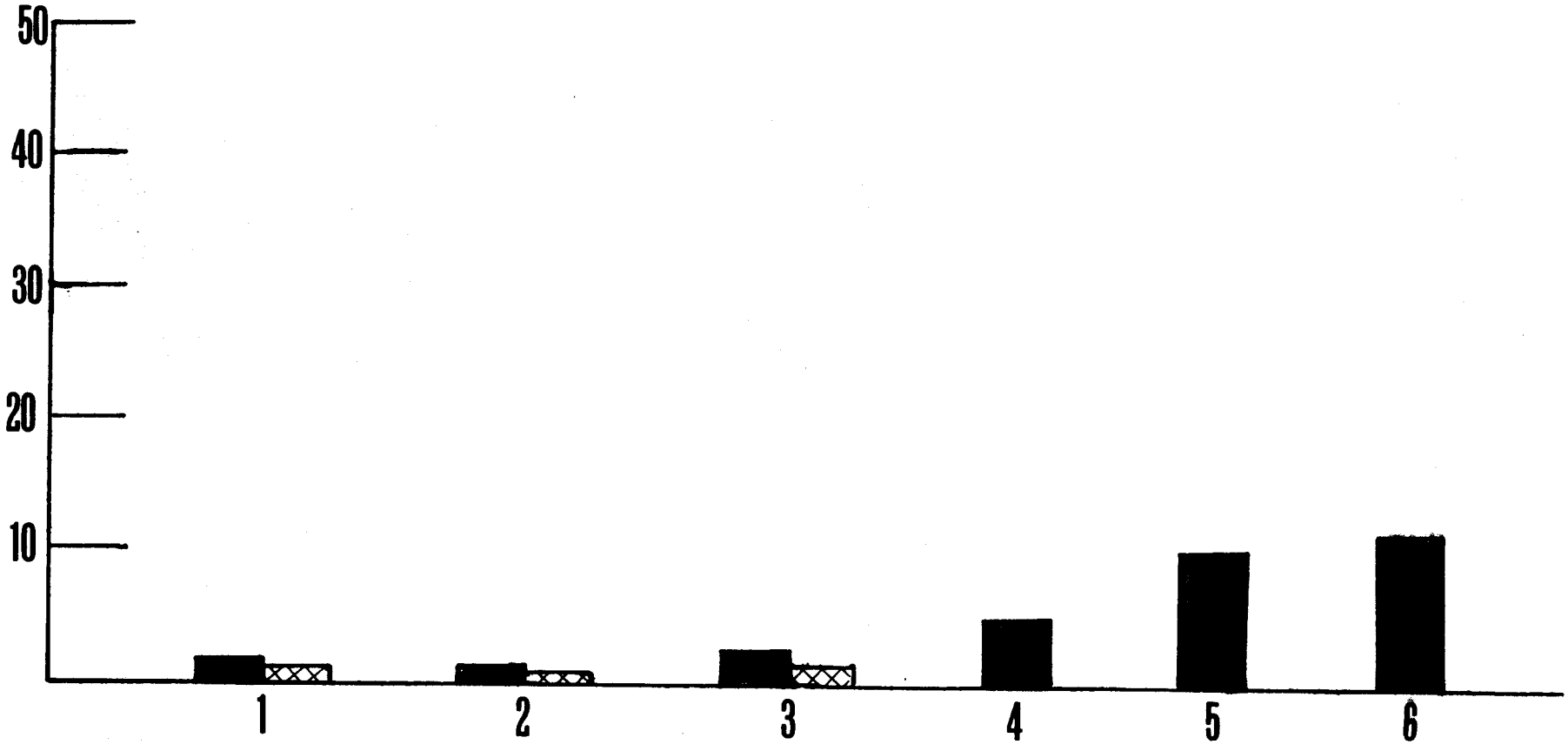


Figure 5. Use of generalization for individual subjects.