

FUNCTIONAL LANGUAGE IN APHASIA

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ABSTRACT. Aphasia has usually been studied by specialized linguistic tests interpreted by theoretically minded experts. A wealth of information much needed by the clinician, about the linguistic functioning of aphasics in daily life can be obtained from therapists working with the patient. To be maximally useful this information should be put in a form making possible comparison between patients and between the achievements of one patient on separate occasions. Such a tool would be useful clinically and for research purposes, but in the latter case only when used in connection with a broad range of other methods. The development of a suitable tool is described, and data are given on the reliability of the measures involved.

The work to be reported here is the first stage of a planned study of aphasics to be carried out in our Department. The subject matter for this report is our attempt to develop methods that are suitable for capturing information about language functioning of aphasics in naturalistic contexts. We assume that therapists working with the patient daily are in the best position to secure this information. Our concern is that it should be put in such a form that it will be useful clinically as well as, potentially, for research purposes.

It appears that some important differences of opinion exist between investigators who have undertaken similar projects. I will outline our position with reference to some of the issues, and then present a report of our work.

Two articles by Taylor (1) and Vignolo (2) raise important questions of validity and reliability of measures of aphasic language functioning. Taylor's arguments may be said to concern validity primarily, in that she denies the relevance of scores on diagnostic tests of aphasia to language functioning in everyday life. To get the kind of information wanted she introduces a list of items to be rated along an 8-point scale from "normal" to "absent". To make these evaluations the thera-

pist has to rely both on his own observations and on information from relatives and other informants. It is stated that in order to be valid the rating must be performed by a highly experienced speech therapist. Nothing is said about standardized sampling procedures, and it must be assumed that no such are employed.

Vignolo (2) deplores the subjective and impressionistic character of this type of work. He also argues that a study of language in realistic contexts will involve a broad range of non-linguistic psychological factors. The author prefers to base his conclusions about language recovery in aphasics upon tests involving verbal description, naming, and the carrying out of simple commands.

In the present work it is considered highly desirable that evaluations of language functioning should be based on observations in a range of contexts, this range being broader than in the diagnostic testing situation. However, we do not think there is a sharp distinction between "clinical" and "diagnostic" performance as modes of functioning. To a person with a language impairment any situation demanding linguistic interaction is experienced as a test of his linguistic ability. The extent to which it is experienced as such will depend on complex interaction between the patient's attitude to his impairment, his familiarity with the situation, and on cognitive and emotional factors. To put it simply: No situation involving language feels "just natural" to the aphasic patient. Denying sharp distinctions, we feel free to include tests with a standardized form of administration wherever we think they are appropriate.

As to the issue of subjectivity it has several aspects. One of these concerns reliability. The question that must be asked is: How large can

the variations attributable to error (differences between raters) be, without prohibiting the drawing of interesting conclusions? This is a question that can be answered empirically. The main purpose of the work done so far on the Norwegian adaptation of the Taylor rating scale has been to secure data on reliability for a certain group of testers. Another aspect of the issue raises problems of validity. What is it that the raters are evaluating? Does their record reflect real states of the observed patient or only certain preconceptions on the part of the raters? No final answers can be given, but it may be pointed out that the same question can in principle be asked of any "objective" test. Some data, and observations on the part of the author of ideas expressed by the raters will give an opportunity for further discussion below.

One last point, raised by Vignolo (2), is that when rating language performance in naturalistic situations a wide range of mental factors must be taken into account to interpret the results. A mentally impaired non-aphasic patient is quite likely not to receive a full score on all items. Taylor (1) still finds that the scoring profile of the two groups is different, and thinks that the difference may give important information about the nature of aphasia. Such data will, however, be of no help in answering questions about interrelationships between linguistic and mental functioning. These questions are of great interest and should consequently be faced. One may ask:

1. To what extent does recovery of full linguistic functioning go together with improvement of level of mental functioning generally?

2. Is there a critical level of mental functioning below which linguistic functioning cannot be recovered?

To be able to answer such questions one must obviously broaden the range of methods employed. We intend to use the Functional Aphasia Scale in connection with other types of tests, among which the neuropsychological will occupy an important position.

METHOD

Taking part in the project are 8 occupational therapists working as raters, the head of department (a neurologist), the assistant head of department, and two psychologists. In a series of weekly plenary meetings the possibility of translating and

adapting the Taylor scale (1) has been discussed. The author was given the task of working out a proposal for how this could be done. In doing so he has kept as closely as possible to the original, leaving the question of alterations or discarding of items to be decided in the group. Partly because our staff cannot be said to consist of highly experienced speech therapists, and partly because of the theoretical considerations outlined above, it was decided to work out a scoring manual specifying as far as possible the situations on the basis of which a given item is to be scored, and criteria of scoring. Fig. 1 shows the final version of the Functional Aphasia Scale.

Compared with the original scale of Taylor we have made the following major alterations:

1. The number of scoring categories have been reduced from 8 to 4.

2. The items have been regrouped under 3 headings rather than the original 5.

The grouping of items used by Taylor is based on a factor analysis. Since we have no guarantee that we follow the same scoring practices as Taylor's raters we do not feel bound to adhere to these factors. Our grouping is partly based on the simple consideration that we would like to have more than 10 items in each group in order to ensure reasonably stable percentage scores. We have also noted that as scored by us, items under the heading of "Gestures" in Taylor's schema are given generally high scores. This raises the question if these items should not in this case be conceived as reflecting the lowest range of a continuum of abilities. We have adopted this interpretation. It is also felt to be desirable to join the items referring to reading, writing, and arithmetic under the heading of "Secondary Linguistic Skills".

Two different indexes of over-all functioning are computed. The first is the total number of points scored as percentage of the maximum. The second score is the percentage of *items* scored 3 or 2 in relation to the total number of items. This last index is of importance because we have adopted a strict division between functionally useful performances, scored 3 or 2, and those that are not, scored 1 or 0. In evaluating the ratings obtained by a patient at two different times we shall be able to speak of his *progress* score, meaning the advance in total number of points scored, and of his *recovery* score, meaning the

Table I. Reliability of ratings between sessions

	Mean of difference		S.D. of mean	
	Points	Percent	Points	Percent
Primary expressive abilities	3.4	9.4	3.0	8.0
Primary receptive abilities	2.9	6.9	2.4	5.7
Secondary linguistic skills	2.3	5.9	1.8	4.6
Total score	—	4.6	—	3.1
Functional score	—	4.6	—	4.1

known to the department those who in their opinion had been in a stable condition with respect to linguistic functioning for at least the last 6 months. This was done after the data had been collected, and without knowledge on the part of the selectors of what scores the patients had obtained. Of 25 patients tested, 9 patients, in the age group of 40–65 with a hemiplegia due to cerebral thrombosis were judged to fit the requirements.

Comparison of ratings of all patients within and between teams was made the basis for further group discussions about possible sources of bias and possibilities for improving our techniques. The data on the patients judged as being in a stable condition will be presented here as the best available data on the reliability of our procedures at this time, given the present teams of raters.

RESULTS AND DISCUSSION

Data on the 9 patients judged as being in a stable condition, and tested on two separate occasions by two teams of testers are presented in Table I.

Every individual rater in each team has been compared with every individual in the other team. The *N* of differences on which the computation has been based varies somewhat for each row. This is so because the raters sometimes left scoring sheets uncompleted. These had to be discarded in whole or in part. The lowest *N* in any row is 44.

The data in Table I to a certain degree justify our scepticism about the ability of raters in general to perform consistently outside of standardized conditions. While we think the Functional Aphasia Scale in its present form can be put to useful application, the difference in stability of

scores between subscales calls for comment. Most stable are the scores on "Secondary linguistic skills". This fact we contribute to the relatively highly standardized nature of the test materials and conditions of administration of this part of the test. At the other extreme, "Primary expressive abilities" is the most problematic subscale. Striking up a conversation with the patient, and judging the quality of word selection and sentence formation while keeping the conversation going, proved extremely difficult.

A very obvious advantage could have been gained by tape-recording all sessions. Unfortunately taperecords were not available to us at the time of the study, but we intend to employ them routinely in the future.

In Table II the range of scores upon which the data on reliability have been based are given.

The data from Table II specify the ranges within which the reliability of our methods have been established. Strictly speaking we do not know to what extent our raters are able to perform consistently with respect to for instance cases of greatly impaired primary receptive abilities.

The comparatively high levels of over-all performance we attribute to the fact that our investigation includes only aphasics living outside of institutions.

Taking the data from Table II as starting point I should like to end this section with some words of caution about the conclusions that can be drawn from this kind of material *in isolation*.

Our patients received generally high ratings on the "Primary receptive abilities". One may be tempted to conclude that defects of understanding play a minor role in aphasia. Personally I think this would be very unwise.

In the discussions it turned out that the raters generally tended to adopt the view that understanding is a very basic ability that cannot be

Table II. Range of scores in cases of stable aphasia

	Lowest (%)	Highest (%)
Primary expressive abilities	20	100
Primary receptive abilities	75	100
Secondary linguistic skills	3	100
Total score	44	97
Functional score	47	98

made subject to very fine grading, but can be roughly conceived as either present or absent. Furthermore they were reluctant to accept the idea that strict performance criteria for the presence of understanding should be employed. These are probably very widespread conceptions, and should make one suspect that tasks demanding understanding tend to be judged less strictly, and hence in this sense can be said to be easier than tasks demanding active performance.

The lesson to be learned from this is that ratings of expressive and receptive abilities reflect everyday notions about these modes of interaction. These notions are important in their own right, because they specify the standards that the aphasic has to live up to in order to function in his daily environment.

However, one should definitely reserve judgement on theoretical issues, like the role of understanding in aphasia, until controlled experiments using psychological methods are available.

CONCLUSION

While believing that our methods can be improved further, we think that the Functional Aphasia Scale can be put to useful application. More specifically three types of application may be pointed out.

1. Clinically the most important use of the scale will be in evaluating the progress of individual patients, and pointing up areas for concentration of therapeutic effort in the individual case. Ideally, to avoid biased evaluations, the patient should be rated at different times by different raters without knowledge of earlier performance. Having a staff of 8 raters, and having secured data on the stability of ratings (Table I), we are in a position to follow this procedure.

2. Data from the rating scale will be useful in planning ahead what areas of therapeutic effort need to be strengthened for our aphasic patients generally. This is so because our methods make comparisons between patients possible. It is not the purpose of this paper to present data bearing on this question, but as an example one may look

at the data in Table II. These seem to indicate that defects in secondary language skills present the greatest therapeutic challenge in this group. Accepting this conclusion, it would be wise to strengthen our general facilities for training in this mode.

3. Finally the rating scale may be used as a research tool in connection with other methods. As pointed out above it is only when used together with psychological tools of investigation that it may justify the drawing of conclusions about the role of intellectual factors in language recovery. Information about medical history and progress in physical therapy contains other variables of interest.

Our plans for application include all three types of procedure. However, it appears natural to start with the problems contained in the first type and proceed gradually to the others as our experience and skill increase.

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