

# A Diagnostic Aphasia Examination for Thai\*

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## INTRODUCTION

Up to the present, no comprehensive aphasia battery has been available for use in Thailand. This paper describes the first comprehensive diagnostic aphasia examination to be developed for use with Thai-speaking patients: แบบทดสอบเพื่อการศึกษาผู้ป่วยไทยที่เป็นอะพาเซีย (Gandour, Dardarananda, Buckingham, Jr. and Viriyavejakul 1980). The exam itself represents an adaptation of the Boston Diagnostic Aphasia Examination (BDAE: Goodglass and Kaplan 1972) into Thai, and accordingly, is designed to fulfill any one of the three following functions: "(1) diagnosis of presence and type of aphasic syndrome, leading to inferences concerning cerebral localization, (2) measurement of the level of performance over a wide range, for both initial determination and detection of change over time, (3) comprehensive assessment of the assets and liabilities of the patient in all language areas as a guide to therapy." (Goodglass and Kaplan 1972:1). Thus, the exam should be useful to the neurologist, psychologist, linguist, speech pathologist and speech therapist.

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It must be emphasized that this Thai exam is an adaptation, and not simply a translation, of the BDAE. It differs from the BDAE in five major aspects. First, it is considerably shorter than the BDAE in the interest of reducing administration time to about one hour. This reduction was effected without sacrificing the integrity of the BDAE. Only those subtests which are not crucial diagnostically for the major aphasic syndromes were eliminated. Further, the sections of the BDAE dealing with reading and writing were abbreviated since most Thai aphasic patients have completed only a fourth grade level of education, which makes it virtually impossible to identify reading and writing errors as a function of an aphasic syndrome or illiteracy. Second, this exam has not yet been standardized, as is the case for the BDAE (Goodglass and Kaplan 1972: 12-23). Since the subtests of the exam vary in length and absolute level of difficulty, the examiner must exercise caution in judging relative degrees of impairment. Third, in the BDAE, auditory comprehension is measured by objective test scores; in the current Thai version, the examiner again must make a subjective judgment regarding a patient's level of understanding spoken language. Fourth, the majority of the actual BDAE test items have been replaced in order to satisfy linguistic and/or cultural constraints. Fifth, in the BDAE, it is assumed that neologistic paraphasias result from distortions of intended target words. The instructions for scoring paraphasic errors in the Thai exam allow for additional sources of neologisms (cf. Buckingham, Jr. 1977, Butterworth 1979).

According to Goodglass and Kaplan (1972:5), aphasia refers "to the disturbance of any or all of the skills, association and habits of spoken or written language, produced by injury to certain brain areas which are specialized for their functions." These disturbances or deficits manifest themselves in the following language areas: articulation, verbal fluency, word-finding, repetition, seriatim speech, grammar and syntax, paraphasia, auditory comprehension, reading and writing. The

subtests of the exam are designed to measure a patient's level of performance in these specific language areas.

## TEST PROCEDURES AND RATIONALE

Table I presents an outline of the sections included in the exam.

Table I. Subtests of Thai aphasia battery.

- \*I. CONVERSATIONAL AND EXPOSITORY SPEECH
- II. AUDITORY COMPREHENSION
  - A. Word Discrimination
  - B. Body-Part Identification
  - C. Commands
  - D. Complex Ideational Material
- III. ORAL EXPRESSION
  - A. Oral Agility
    - 1. nonverbal agility
    - \*2. verbal agility
  - \*B. Automatized Sequences
  - \*C. Repetition of Words
  - \*D. Repeating Phrases
  - \*E. Visual Confrontation Naming
- IV. UNDERSTANDING WRITTEN LANGUAGE
  - A. Symbol and Word Discrimination
  - B. Word Recognition
  - C. Word-Picture Matching
- V. WRITING
  - A. Mechanics of Writing
  - B. Narrative Writing

(Sections preceded by an asterisk should be tape-recorded.)

The section on conversational and expository speech is designed "to determine the level and quality of the patient's speech and comprehension under conditions of open-ended conversation and free narrative" (Goodglass and Kaplan 1972:24). The free narrative asks the patient to describe a picture (see Card 1, Figure 1). The vocabulary limitations of the picture, in contrast to free conversation, enable us to gain a more sensitive measure of a patient's word-finding difficulty.






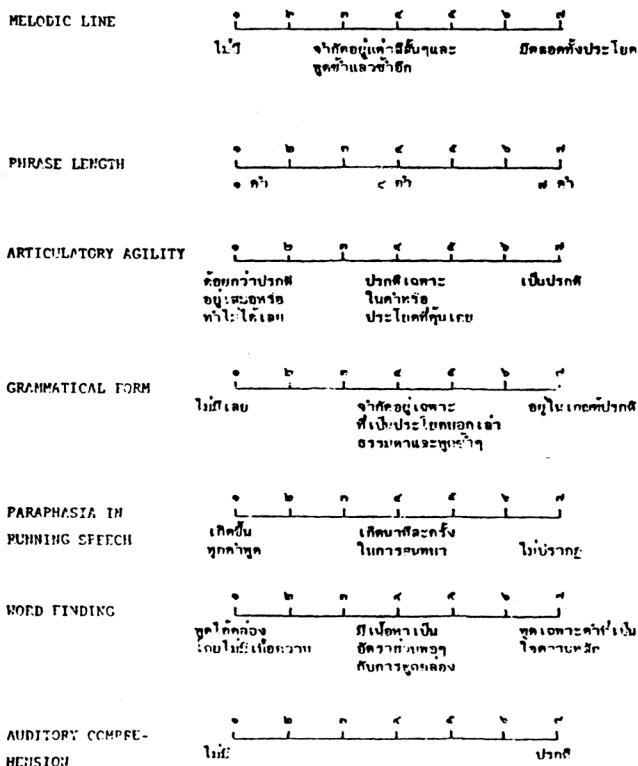
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Figure 1. Test cards used in the administration of the Thai aphasia examination.

Based on the conversational and expository speech interview, the examiner rates six features of speech production, which are not satisfactorily measured by objective scores. The six features are: 'melodic line', 'phrase length', 'articulatory ability', 'grammatical form', 'paraphasia in running speech' and 'word-finding'. The examiner also rates 'auditory comprehension' on the basis of the speech interview plus objective scores of selected subtests (cf. Goodglass and Kaplan 1972:27-28). These seven features of speech production and perception constitute a patient's Rating Scale Profile of Speech Characteristics (see Figure 2).

RATING SCALE PROFILE OF SPEECH CHARACTERISTICS



Following Goodglass and Kaplan (1972:25-27), melodic line refers to the intonational pattern which normally extends over the whole sentence; phrase length refers to the length of uninterrupted words between pauses or sentence boundaries; articulatory ability refers to the ease with which the patient articulates phonemic sequences; grammatical form refers to the continuum from one-word sentences to a normal variety of grammatical constructions; paraphasia in running speech refers to the substitution or insertion of semantically erroneous or neologistic words in spontaneous, fluent conversation; word-finding refers to the informational content of the patient's speech in relation to his level of fluency (rated on a scale in which '1' = 'empty speech', '7' = 'telegraphic speech' and '4' = normal performance in which the proportion of specific nouns and verbs is appropriate to the fluency level); auditory comprehension refers to the patient's capacity to understand spoken language based on the four subtests in the section on auditory comprehension (see below) and the conversational speech interview.

In the section on auditory comprehension the 'word discrimination' subtest asks the patient to recognize spoken words by means of pointing to visual stimuli on two test cards (see Cards 2 and 3, Figure 1). This auditory word-recognition test

samples six semantic categories of words: objects, forms, letters (Card 2); actions, numbers, colors (Card 3). The 'body-part identification' subtest asks the patient to identify ten body-part names by means of pointing to parts of his own body. In the 'commands' subtest, the patient is asked to carry out a series of five increasingly complex commands. The 'complex ideational material' subtest requires the patient to answer 'yes-no' questions about factual material (eg., *ไม้กระดานชนวนใช้ไฟไหม้*) This particular subtest, in contrast to the three preceding subtests on auditory comprehension, does not require the patient to carry out any purposeful movements. Thus, the presence of apraxia as a possible source of contamination can be evaluated by comparing a patient's scores on the word discrimination, body-part identification, and commands subtests to his score on the complex ideational material subtest.

In the section on oral expression, the 'nonverbal agility' and 'verbal agility' subtests enable us to compare the patient's ability with the mechanics of articulation on nonverbal and verbal serial repetition tasks. In these two subtests, the patient is asked to repeat oral movements (eg., *ท่าปากจู๋ แล้วปลิ้น*) and words (see Card 4, Figure 1), respectively, at maximum speed for a 5-second interval. The presence of a nonaphasic dysarthria might be reflected in a poor performance on the nonverbal agility subtest. In the 'automatized sequences' subtest, the patient is asked to recite three memorized sequences: days of the week, months of the year, and numbers from one to twenty-one. While the reciting of overlearned sequences may be partially spared in all types of aphasic syndromes, this subtest is of diagnostic importance for the transcortical aphasia. In the 'repetition of words' and 'repeating phrases' subtests, the patient repeats, respectively, words ranging from two to six syllables across different grammatical categories (egs., *ท่า, นก, ศัตรูของสัตว์*), and two sets of sentences ranging in length and unpredictability of verbal content (eg., *นกในสวน* 'high-probability' versus *นกที่เพิ่ง* 'low-probability'). Goodglass and Kaplan (1972:33) reported that "patients with severe anomic aphasia have an enormous over-

dependence on the predictability of the content, with resulting discrepancies between high-probability and low-probability scores". In the 'visual confrontation naming' subtest, the patient is asked to name visual stimuli (see Cards 2 and 3, Figure 1).

The four preceding subtests (automatized sequences, repetition of words, repeating phrases, visual confrontation naming) in the section on oral expression also provide for the scoring of articulatory difficulty and paraphasia for each response. According to Goodglass and Kaplan (1972:30), "articulatory difficulty refers to loss of accuracy in forming individual phonemes so that the sounds which emerge...are not standard English (JG:Thai) phonemes. This usually occurs in a context of effort, awkwardness, and slowness of speech." A patient's responses may be scored as 'normal', 'stiff' (but correct), 'distorted', and 'failure'. "Paraphasia refers to the production of unintended syllables, words or phrases during the effort to speak. In general, paraphasia is characteristic of patients whose speech sounds are fluently uttered" (Goodglass and Kaplan 1972:8). The patient's paraphasic error may be scored as 'neologistic', 'phonemic', 'verbal', or 'other'. In isolation, it is sometimes difficult to decide whether an error falls under articulation or paraphasia. In such cases, one must consider the patient's overall range of articulatory agility.

In the section on understanding written language, the 'symbol and word discrimination' subtest asks the patient to recognize letters as familiar symbols by means of visually matching printed letters and words (see Card 5, Figure 1). The 'word recognition' subtest asks the patient to point to the word spoken by the examiner (see Cards 6 and 7, Figure 1). In the multiple-choice sets of this subtest, the incorrect choices consist of words similar to the test word in either sound or meaning (eg., correct = ชอ; incorrect = ครง, ชอ, ช, ชอ ). This particular design feature of the multiple-choice sets enables us to reveal the patient's ability to respond to the meaning of a word without appreciating its phonetic composition. The 'word-picture matching' subtest asks



the patient to match printed test words (see Card 8, Figure 1) with corresponding pictures (see Cards 2 and 3, Figure 1). This is the only subtest in the section on understanding written language in which the comprehension of the meaning of written words is involved. The patient with poor auditory comprehension may perform well on this subtest in contrast to the preceding word-recognition subtest.

In the section on writing, the 'mechanics of writing' subtest asks the patient to write his name and address. The patient's performance on this subtest is scored only with respect to legibility. In the 'narrative writing' subtest, the patient is asked to write as much as he can about what he sees happening in a picture (see Card 1, Figure 1). This subtest enables us to evaluate the patient's ability to write connected sentences.

In addition to the aphasia subtests and the Rating Scale Profile of Speech Characteristics, the exam also provides a 6-point Aphasia Severity Rating Scale on which the examiner judges the patient's overall ability in speech communication. A '0' rating indicates no usable speech or auditory comprehension; a '5' rating indicates no readily apparent speech or comprehension deficits.

The aphasia severity rating and the scores on the subtests constitute the patient's 'Profile of Aphasia Subscores' (see Table II).

## CLINICAL VARIETIES OF APHASIA AND CONFIGURATIONS OF TEST SCORES

Despite differences in terminology across aphasia typologies, there appears to be basic agreement concerning the symptoms underlying the major aphasic syndromes. This Thai version of the BDAE follows the classification of aphasic syndromes in use at the Boston Veterans Administration Hospital Aphasia Research Unit (Goodglass and Kaplan 1972:54-78; Benson and Geschwind 1976).

The diagnosis of a patient's aphasic syndrome is based on the Profile of Aphasia Subscores and the Rating Scale Profile of

Table II. Profile of aphasia subscores

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Speech Characteristics. Figure 3 shows the ranges of ratings on the Rating Scale Profile of Speech Characteristics consistent with two of the major aphasic syndromes: Broca's aphasia and Wernicke's aphasia.

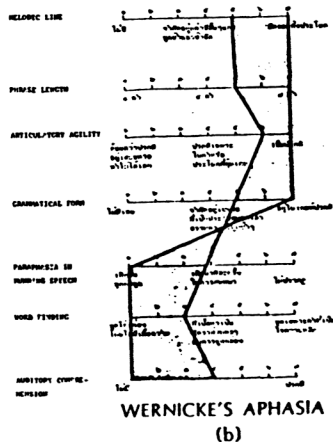
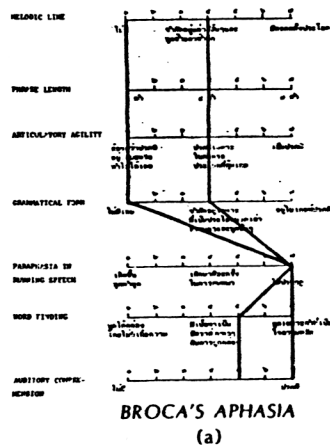


Figure 3. Range of speech profile characteristics of Broca's aphasia (a), and Wernicke's aphasia (b)

According to Goodglass (1979, personal communication), of those patients who have been tested with the BDAE, more than 40% fit into their classification of aphasic syndromes.

#### PROGRESS REPORT

To date (November 1980), the complete exam has been administered to twenty Thai aphasic patients, and various portions thereof to another twenty-five patients. The results so far have been very encouraging, particularly in light of the three general aims of the exam set forth in the Introduction. In subsequent publications, case studies of Thai aphasics, for whom both language test patterns and pathological localization findings are available, will be presented. While it is fully recognized that much statistical analysis remains to be performed in order to standardize the exam, we are hopeful that the current version will both promote and facilitate future research on Thai aphasia.

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