

Language Input Variables in Aphasia

David Crystal

Department of Linguistic Science, University of Reading, Reading RG6 2AA, England

THE SIGNIFICANCE OF LANGUAGE INPUT

"The first step [in aphasia research] is to compile a description of the patient's aphasic symptomatology." This statement, taken almost at random from the most recently published textbook on aphasia therapy (3, p. 145), is a truism that should not need stressing in the 1980s. Yet the full range of implications deriving from this statement have not yet been taken into account in either aphasia research or therapy. In a previous report (7), I emphasized the necessity of carrying out a complete description of the aphasic patient's (P) language in terms of some theory of linguistic levels, and argued that certain levels have been unjustifiably neglected: prosody and certain aspects of semantics, in particular (7). This chapter looks at a totally different dimension to the definition of aphasic symptoms, which has been even more neglected than the structural facets of P's language (it is given no systematic discussion in the textbook referred to above, for example): the nature of the therapist's (T) (or other investigating or managing adult's) input language.

It is not strange to discuss T's input language as constituting part of the definition of P's symptoms, considering that this is the field of language disorder. Language disability, as language ability, is canonically an interactive phenomenon. We do not typically talk when there is no one around to listen; we expect our talk to have an effect on others, and we are aware that others' talk will have an effect on us. Aphasic symptoms, then, will be manifest only in interaction, and in this respect they are unlike most other kinds of medical symptoms. A patient does not go home and nurse his aphasia, as he does a wounded knee. If P does not wish to communicate, or if no one wishes to communicate with P, there will be no aphasic symptoms. In like manner, the nature of these symptoms at least in part depends on the person P is talking to, and specifically on the kind of language he or she uses. For example, it would be easy to conclude that the following sequence of P sentences illustrated someone at a single clause element stage of grammatical development: *a car, a man, a bus, trees*. In fact, they were all used as responses in a drill in which T was asking "What can you see in the picture? What else can you see?" and represent a kind of single element sentence which is unrelated to developmental processes, as they are all elliptical. The sequence "*T* What can you see in the picture? *P* Trees." is a legitimate conversational turn. By contrast, the sequence "*T* Where's the man going?"

P Trees." is not. *P* may be saying something relevant about the picture, but the linguistic relationship between *trees* and *T*'s stimuli differs in these two sequences. In the first, *P*'s utterance could be expanded into "I can see trees"; in the second, it cannot be expanded into "*The man is going trees." The second sentence is a cause for immediate concern; the first is not. We know this, however, only by considering the relationship between *P*'s and *T*'s sentences. It is in this way that the nature of *T*'s input language forms part of the definition of *P*'s disorder.

In other words, aphasic symptoms do not exist in isolation but are elicited; and the means of elicitation thus become part of the object of study. This becomes especially important when research is undertaken into therapeutics and management, where the ability to control or structure the linguistic interaction with *P* is considered to be a defining feature of *T*'s professionalism and is a current focus of study, relating to the efficacy of speech therapy. The following set of quotations from Code and Müller (2) is illustrative of the need for foundational work in this area: "the majority of efficacy studies have shown methodological shortcomings and inconsistencies which give rise to difficulty in making comparisons between them" (11, p. 24) . . . "it is only by describing aims and methods precisely that the efficacy of speech therapy for aphasia can truly be evaluated. Too many papers gloss over the details of the therapeutic programme, so that objective judgement of its actual relevance to improvement in the patient's language function is virtually impossible" (14, p. 74) . . . treatment must "be described in sufficient detail to allow it to be exactly duplicated by other therapists teaching other patients" (3, pp. 198-199), which in effect means "a detailed account of every therapeutic step undertaken" (14, p. 74). Many variables are involved in this enormous task; but, whereas recent studies have become increasingly aware of the need to control such factors as the amount and duration of treatment, the crucial question of the nature of the treatment remains vague. In an account of the Bristol evaluation study, for example, precise details of amount and duration of treatment are followed by this account of the nature of the intervention: "The speech therapists treat the patient using such techniques as training and experience suggest to be appropriate" (11, p. 22).

In a recent comparative study of aphasic patients, in which I had an advisory role, I had to agree that the only way to proceed, in the present state of knowledge, was to instruct the participating therapists to interact as they normally would in carrying out their allocated tasks. This was reluctant agreement, however, for I knew some of the *T*s involved and had analyzed samples of their work in other connections. I knew, therefore, that there were major differences of style and strategy in their use of language. One *T*, for example, said *good*, or an equivalent phrase, after almost every *P* response; another *T* was much more sparing in her praise. One *T* would repeat her action-cuing phrase as part of every stimulus (e.g., "Can you point to the blue pen? . . . Can you point to the red pencil? . . . Can you point to the . . ."); another *T* would rarely repeat the opening phrase and added many variations (e.g., "Can you point to the blue pen? . . . Now, the red pencil? . . . What about a green book? . . ."). It would be naive to assume that such stylistic differences would somehow "cancel each other out"; but there was no way of controlling for them without

radically altering the proposed design of the study and vastly extending its length. As so often, more questions than answers were being generated.

It is difficult to know whether such research is ultimately a waste of time. After all, I could not honestly advise the researchers *not* to proceed, simply on the basis of my intuition that these stylistic differences are important. On the other hand, my quandary does illustrate the urgent need for further research into these differences, as an end in itself. In view of the widely expressed feeling that there are "few firm conclusions to be drawn from aphasia therapy evaluation to date" (11, p. 22), it would seem that my dissatisfaction with current procedures is not simply a private obsession.

An accurate description of *T*'s input language, complementary to and in the same terms as that provided of *P*'s language, is a *sine qua non* of progress in relation to the above areas. Only with such a description available can one begin to investigate systematically such central issues as the linguistic level of *T*'s language in relation to the level at which *P* is functioning; the extent to which *T* is consistent in working with the same *P* or with different *Ps*; the role of different *T* strategies in working with *P*; and the variability that *T*s manifest as a result of different kinds of training and experience.

We have become used to carrying out tests and other assessments on *Ps*' samples in recent years; it should also become routine to carry out no less stringent assessments on *T*'s contributions to the interaction. As one looks at the various test forms, profile charts, and so on, it is rare to find space allocated for even the barest indication of *T*'s input style; and when it is, it is often ignored by practising *T*s. For instance, the Language Assessment Remediation and Screening Procedure (LARSP) chart (10) has a section B in which a simple but fundamental distinction is made between two kinds of *T* stimulus: whether or not *T* has used a grammatical question. The use of clearly defined questions, as opposed to the use of other stimuli (statements, commands, exclamations, prompt noises) is a major variable in therapeutic style. In brief, the more questions one introduces into an interaction, the more interrogating it becomes, and the less like natural conversation, where questions are not the dominant method of eliciting responses, as recent studies have shown (9,17). The LARSP distinction is a fairly basic measure; a more sophisticated classification of the grammatic functions of *T* stimuli is now practicable and certainly desirable. Even this basic distinction can be ignored, however, with *T*s often using the LARSP approach without completing section B.

As a further example, we may consider the way in which the course of a particular *P*'s aphasia is often studied, over a period of time, by obtaining tape recorded samples of the therapy sessions at specified times and of specified durations. Let us imagine a 30-min sample obtained 1 month after *P*'s incident, and a second 30-min sample obtained 6 weeks later. The *T* is giving speech therapy to *P* twice a week. It is obvious that one of the most significant changes that will take place during this period is that *T* will become more used to *P* (and vice versa); as a consequence, *T* will not be talking to *P* in the same way. The conversation will become more informal; more information will be left unsaid; certain themes will become favorite topics; other

themes will be a cause of upset; certain tasks will become routine—and all this will have specific linguistic consequences for T's choice of sounds, grammar, and vocabulary. It is inevitable that T's input language will change; and it is a sound therapeutic principle that it should change, as T keeps pace with (and, usually, aims to stay a little ahead of) the level of P's emerging language. If change is the expected state of affairs, care must be taken in any assessment of progress to ensure that like is being compared with like.

If, as a consequence of T becoming familiar with P's linguistic limitations, T develops language strategies to make P respond within these limitations, to make him feel at ease, and so on, it becomes unclear whether P's or T's progress is in fact being monitored. To say that P has made progress, in the sense that he is saying or understanding more, or is speaking more confidently, may be illusory.

Here is an illustration of the kind of stylistic change that can take place. In an early session (A), T used the following stimuli as part of her work on comprehension (transcription conventions are explained below):

- A I 'just want you to 'point to the 'things that I sày/ OK/ . . . now I'm 'going to 'ask you some quèstions/ OK/ – and I 'just 'want you to say 'yes – or nò/
I've 'got some pictures hère/ and I 'just 'want you to 'have a lóok/ – and 'tell me 'what you 'can abòut it/ alrìght/

Within two sessions, her style had altered markedly, primarily by reducing the length of these opening stimuli. She then used such sentences as the following:

- B nòw/ 'here are some pìctures/ – réady/
'you 'point when I nàme 'something/ OK/
nòw/ 'say 'yes or 'no ònly/ OK/

This reduced (and almost telegrammatic, at times) style is presumably the result of T's growing awareness of P's limitations of comprehension, memory and attention—an awareness that one can actually observe in the course of development, in such "inverted pyramid" sequences (i.e., longer sentences above, shorter below) as the following, taken from session A:

- when I 'ask you these quèstions/ I 'just 'want you to 'say yes or nò/
P looks blank
'you just say 'yes or nò/ OK/
'yes or nò Mìster 'Smith/
'yes—or nò/
P grunts and nods
'nothing èlse/

It was fairly evident to all concerned that P was responding better to the questions in session B; he made fewer wrong responses, made more confident correct responses, and was generally less hesitant. To check whether it was genuine progress on P's part, it would be necessary to do one of several things, such as analyze P's behavior talking to people other than T, or see how P behaved if T reintroduced the longer stimuli of session A. It would not be enough to have recourse to formal testing in this kind of situation, as this would have little or nothing to say about the general

conversational skills involved. The only way to determine the influence of these variables in T's behavior is to incorporate them into one's description of the session, relating them to the language used by P. It is then a matter of conscious decision whether to replicate an earlier interaction style for a new sample or to allow various changes. This decision must be based on detailed knowledge. It is worth recording that, in the above example, the skills displayed by T were not under conscious control; until this analysis was carried out several days later, she was not aware that she had changed her interaction style so drastically.

INPUT VARIABLES

If one wishes to control the nature of input language for purposes of diagnosis, assessment, or therapy, it is first necessary to be clear about the range of variables involved. Surprisingly, this basic awareness is not routine; fundamental aspects of language structure and use still are neglected, not only in everyday clinical work but even in research studies. The range of variables will be the same as that required for the specification of P linguistic behavior, but the descriptive statement will be inevitably more complex, as T's language (being "normal") will utilize more fully the resources available in the language. It should be pointed out, however, that not everything that T says is necessarily relevant for the description of input language. Clinical linguistic interaction is typically a three-part process, which has been described as a sequence of *stimulus*, *response*, and *reaction* (4,5). Usually, it is T who initiates an interaction with a *stimulus* utterance, as:

- T 'point to the tàble/
T 'how are you fèeling to'day/
T 'tell me a'bout this pìcture/

P may then *respond*, and if he does, T may *react* to his response, with, e.g., agreement, praise, or amplification:

- | | |
|--|-----------------|
| T 'what can you 'see in the pìcture/ | <i>stimulus</i> |
| P a càr/ | <i>response</i> |
| T yès/ it's a càr/ that's rìght/ . . . | <i>reaction</i> |

Linguistic input refers primarily to T's stimulus and reaction language, i.e., language that is directed to P. Although T may say a great deal more than this in the course of a clinical session—he may answer the phone, talk to a relative, or talk to himself (not at all uncommon, especially when one is "organizing oneself" before a structured activity)—these kinds of utterance must be considered separately, if the notion of input is not to be rendered vacuous.

Following conventional linguistic accounts (5), input variables can be classified into variables of *structure* and *use*. *Structural* variables concern the form utterances take, described independently of the social situations in which they are used. *Use* variables specify the nature of these social situations and the functions performed by these utterances. In clinical linguistics, the traditional focus of attention has been on the structural specification of P language; only in recent years has there been a

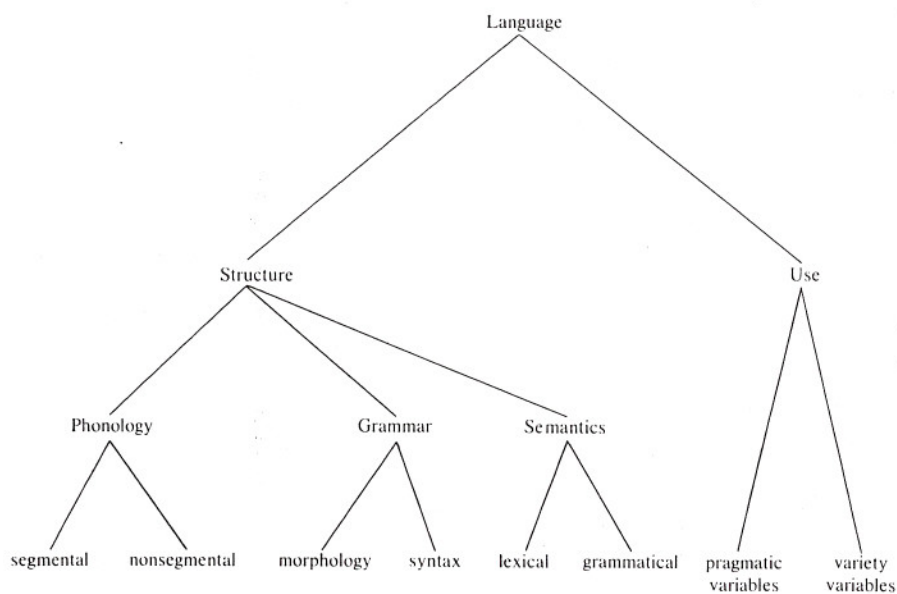


FIG. 1. Input variables in linguistic analysis.

complementary approach to the study of language in use. Current studies of input language, however, seem to be demonstrating a reverse neglect, focusing on utterance functions and situations at the expense of utterance forms. Thus, for example, several papers in language acquisition studies provide a classification of the functional reasons for an adult's child-directed utterances (such as agreeing, denying, directing, persuading), but few studies pay proper attention to the formal characteristics of the utterances that expound these functions (what kinds of ways are available in the language for the expression of agreement, denial, direction, persuasion). It would be unfortunate if clinical studies of T input demonstrated a similar lack of concern to preserve a balance between formal and functional dimensions of analysis, especially at the present time, when the research field is in need of delimitation. The following model gives equal weight to the two major types of variable and to their subtypes, pending such time as their relative contribution to aphasic symptomatology can be determined.

Figure 1 outlines the main variables involved. Under the heading of structure, three levels of linguistic analysis are recognized: phonology, grammar, and semantics, the first and last of which are analyzed further into two sublevels. At the level of segmental phonology, one analyzes utterances into vowels, consonants, and their combinations as syllables. At the level of nonsegmental phonology, one analyzes the properties of utterance generally referred to by such labels as prosody, intonation, rhythm, and tone of voice. At the level of grammar, the structure of sentences and sentence sequences is analyzed in terms of syntax and morphology. At the level of lexical semantics, one analyzes the meaning and other properties of vocabulary.

At the level of grammatical semantics, one analyzes the meaning, or role, of the units (words, phrases, clauses) recognized by the study of grammar. The following sentence illustrates the kind of information that analysis at each of these levels would provide, using one particular approach (5).

The man's driving a car

Segmental phonological transcription: ðə mænz draɪvɪŋ ə kɑ:

Nonsegmental phonological transcription: the 'man's 'driving a càr/

where / marks the end of an intonation/rhythm unit; italics marks the most prominent word in that unit; ` marks the direction of pitch movement (falling) on that word; and ' marks the occurrence of stressed syllables.

Grammatical analysis:

the man		's driving		a car	
Subject		Verb		Object	
Determiner	Noun	Auxiliary verb	Main verb	Determiner	Noun
		contracted auxiliary	-ing ending		

to which must be added grammatical information about the sentence type—a statement—and about the relationship between this sentence and others formally derivable from it, such as questions (*is the man driving a car?*) or the passive (*a car is being driven by man*).

Lexical semantic analysis: Each item would be analyzed in terms of the semantic field to which it belongs (e.g., *car* is a member of the field of *vehicles*) and of its relationship to other items in the language (e.g., one *drives a car* or *train*, but not a *bike* or *airplane*; with reference to the same object, one might be said to be driving a *car*, *auto*, *motor*, *jalopy*; *man* is in a certain sense the opposite of *woman*; and so on).

Grammatical semantic analysis: Each grammatical unit performs a semantic role. Thus, at the clause level, the subject performs the semantic role of *actor*; it is the element that carries out the action specified by the verb. At the phrase level, the semantic role of the determiner *the* is to specify that the *man* in question is identified, or definite; and so on.

Under the heading of *use*, several further dimensions of linguistic analysis must be recognized, which can be grouped into two main types: *pragmatic* and *variety* variables. Pragmatic variables refer to the factors governing the user's choice of utterance arising out of the social interaction in which he is involved, factors such as when someone chooses to speak, how much he says, whether the subject matter is appropriate to the situation, and so on. For example, the sentence "You'll be needing your coat, Mr. Jones," as said by T, would be appropriate, one imagines,

only toward the end of a session, and if there was some reason for T to introduce the topic (e.g., if it were starting to rain, or if P has forgotten to pick it up); it is difficult to imagine a setting in which T used this sentence at the beginning of a clinical session. Pragmatic variables are currently attracting a great deal of interest in general linguistics and have received little application as yet in aphasiology (15,16). Variety variables refer to those features of an utterance that are situationally distinctive, in the sense that the linguistic features bring to mind a particular extra-linguistic setting, and vice versa. Chief among these are the following (8):

Regional dialect features: signal where the speaker is from, in geographic terms, such as Scottish, American, or Liverpudlian.

Social dialect features: signal where the speaker is from, in terms of, e.g., class background and educability.

Temporal features: signal the historic period to which a speaker belongs, or his age (e.g., the use of old-fashioned parlance).

Province features: signal which specific occupational activity a speaker is engaged in, such as the "language" of a lawyer, a priest, or, for that matter, a speech therapist.

Status features: signal the nature of the social relationship that exists between the speaker and his interlocutors, such as whether it is friendly, formal, or polite.

Modality features: signal the purpose someone has in mind when conveying a message, by use of a particular format, such as the distinctions between telegram, letter, postcard, and memorandum, or, in clinical work, the various kinds of structuring given to a session.

Singularity features: signal a systematic idiosyncrasy on the part of the speaker, such as a particular turn of phrase (as in the regular use of *OK* by T in the examples above).

From time to time, stylistic analyses of language variety have recognized other variables. Terminology, moreover, is not stable in this domain, but the above list should suffice to illustrate the range and importance of this dimension of enquiry.

As this range of variables is less well-known in clinical work, a brief example of the kind of difficulty that might arise under each heading may be helpful:

Regional dialect: T, born and brought up in the South of England and trained in London, marries and finds herself working in Glasgow, with consequent problems of intelligibility between her and P.

Social dialect: T and P read different kinds of newspaper, are interested in different kinds of hobbies, can afford different kinds of things, use different kinds of social slang and exclamations, and so on.

Temporal: P may be 70; T may be 25. The language has changed enormously since the first quarter of this century (12).

Province: T uses medical or quasimedical terminology, which means nothing to P; or P assumes T knows technical terms belonging to P's previous profession.

Status: Personalities vary. Both Ts and Ps vary in the amount of informality they consider desirable in a session. The use of forms of address can vary from one

extreme to another (*Mr. Smith, Mr. S, John, Johnny*). Age and sex of the participants are other obvious factors influencing the course of an interaction.

Modality: Likewise, both Ts and Ps vary in their readiness to be involved in format activities. Some Ts run a highly disciplined clinic; others run a more casual one. Some Ps want to be totally organized; others do not. The proportion of structured-to-nonstructured work in a session is also a significant variable when making comparisons between sessions.

Singularity: A habit of P's may be mistaken for a clinical symptom, e.g., a frequent use of *you know* or *really*.

Pragmatic variables: P fails to understand the nature of the turn-taking which T has attempted to explain in carrying out a task; P introduces a topic into the conversation without it being clear to what it relates; P goes on for too long in his reply to a simple question (as in much "fluent" speech); T's language is too complex for P to follow; T gives the impression of "speaking down" to P (the "Does he take sugar?" phenomenon); T uses materials (and thus language) which are of no interest to P or underestimate his maturity in some way (many clinical materials having been designed originally with children in mind).

A model of this kind raises many fascinating questions and hypotheses concerning the relative weighting of these variables in accounting for communicative failure in clinical sessions. T speaks; P fails to respond or responds inadequately. Which of these variables are implicated? It is often possible to eliminate some of the more obvious variety variables from the enquiry at the outset, e.g., if P and T are both speakers of the same regional dialect. It is never possible to eliminate the structural variables without careful study, however, and many pitfalls await the unwary T if insufficient attention is paid to the pragmatic variables. The analysis of a few real examples will illustrate these points and, incidentally, stress the need to adopt a balanced account of these variables in analysis of input language and to pay proper attention to their mutual dependence.

EXAMPLES OF INPUT FACTORS

With respect to the description of input factors in clinical sessions, all input variables have been neglected, but some more than others. Following the attention devoted to grammatical factors in recent years, this particular variable is now receiving some study (10,14), and the relatively discrete nature of segmental phonological and lexical semantic features of utterance has also promoted relevant research. The domains of grammatical semantics and nonsegmental phonology remain almost totally unexplored, however. In a previous publication (5), I gave some examples of the way in which the study of input in terms of grammatic/semantic roles could increase our understanding of the nature of T-P interaction; but that work gave no examples of the central influence of nonsegmental phonology in determining the character of T input language in aphasiology; hence the following illustrations.

That prosody has a role in influencing aphasic responses is well known since the work of Goodglass and others several years ago (1,13). Moreover, in some experi-

mental work, and also in certain aphasia tests, it is standard practice to try to eliminate the effects of prosody by holding stimulus sentences constant in intonation and rhythm, as far as possible (although the naturalness of the subsequent stimuli, or the level of production consistency achieved by the investigator, is often questionable). So far uninvestigated is the role of the prosodic system in motivating and controlling P's responses, that is, the extent to which P is aware of the linguistic role of the different prosodic patterns available in the language. Of all the variables that affect P's ability to comprehend, recall, or repeat T's stimuli in this area, the role of tonicity seems most significant, i.e., the factor that determines which word (or words) in a tone unit carries greatest prominence. In the transcription used in this chapter, tonic words are shown by the presence of an accent mark above the vowel of their stressed syllable: if the accent is ` , the pitch movement which realizes this prominence is falling; ´ is rising; ¯ signals a level pitch movement; ^ a pitch movement that first rises and then falls within a syllable; and ˇ a pitch movement that first falls and then rises within a syllable.

The basic semantic principle involved in tonicity is that the word carrying the tonic accent is the one to which the speaker wishes to draw attention. Thus in the sentence "I can see an old red car," the tonic could be placed on any of the words, and different semantic implications would result, as the following glosses illustrate:

I can see an old red càr (as opposed to an old red bike, perhaps).

I can see an old rèd car (as opposed to an old blue car, perhaps).

I can see an òld red car (as opposed to a new red car, perhaps).

I can see àn old red car (not two such cars).

Some contexts are more likely than others, of course, but the underlying principle is constant, and it is one that aphasic Ps often have difficulty in grasping. They often assign a tonic syllable to a word that seems to have no special semantic significance in the discourse, as the following extract shows:

T 'what can you 'see in the picture/

P a rèd car/

As there was only one car in the picture, the focus on *red* was inappropriate. It would have been appropriate in this context, however:

T 'which 'car is 'near the shòp/

P the rèd car/

This pair of examples illustrates the way in which the adequacy of P's response, and in particular its prosodic character, is determined by T's input stimulus. Indeed, it is regularly the case that T will manipulate tonicity contrasts in order to draw P's attention to a significant word in her stimulus:

T can you 'give me the káy/

P —[də]·kéys/ —

P points to the keys

T can you give me the káy/

P yés/ —

P gives the keys

T thànk you/

When a sentence contains more than one important piece of information, it is normal practice to identify the information units by giving each its own tone unit. This is the principle that explains the contrast between:

there's a càt in the 'garage/

where the speaker is drawing attention to the cat but considers it routine that the cat is in the garage, and:

there's a càt/ in the gàrage/

where the speaker is surprised both that there is a cat, and that it is in the garage. In the following dialogue, T is making use of this principle in a comprehension exercise. A box and several small objects are on the table, and T is investigating P's awareness of prepositions. For the first instruction, both the object and the location are given separate tone units (line 1). Subsequent instructions using the same object are not split in this way (lines 7, 12, 18), however: the penny is now 'old news' and no longer requires a special tonic prominence. When a new object is introduced (line 22), however, the double-unit pattern reappears. (Other transcriptional symbols used in the examples are: . , —, —, —, increasing degrees of pause length; ↑ , a step-up in pitch; ' , speech uttered in a certain way (as glossed in the right-hand comment); [], enclose phonetic transcription; = , a lengthened segment; (), enclose unclear speech; **, overlapping speech.)

T 'can you 'put the pény/ . 'in the bóx/

P — thère/ —

puts penny in box

T gòod/

thànk you/

5 thàt's ríght/

P yéah/ (coughs) —

T 'can you 'put the 'penny . ↑ ùnder the bóx/

P —

puts penny under box

T ↑ gòod/ .

10 gòod/

P rí/

T — can you 'put the 'penny . be ↑ hìnd the bóx/

P — 'm/ —

'weakly pronounced'

[tə tə] —

15 T gòod/

P rí/

T gòod/ —

'can you 'put the 'penny . in ↑ frònt of the 'box/

P —

puts penny in front of box

- 20 T gòod/ —
 P (coughs)
 T 'can you 'put the kèy/ . be ↑ side the bóx/

What is interesting is to see what happens when T fails to control the prosodic structure of her input as successfully as on this occasion. In the following example, the same opening strategy is used (line 1), with an appropriate simplification in line 7; but in line 11, where the new object is being introduced, T fails to return to the double-unit structure. P follows the prosody, ignoring the lexical change, and must be corrected. Later in the session, a similar failure to make the new lexical item tonic (line 23) resulted in P having to rehearse the item to herself (line 24); it is interesting to note that she reintroduces the tonic syllable in the process.

- T 'can you 'put the ↑ pĕnny/ in the bòx/
 P — pĕnny/
 — well 'that's a pĕnny/ I supposé/
 (laughs) — puts penny in box
- 5 T 'that's ríght/
 gòod/ —
 can you 'put the 'pĕnny . ↑ ùnder the 'box/
 P — puts penny under box
 T 'that's ít/
 gòod/ —
 'can you 'puĭ the keȳ . ↑ òn the 'box/ — puts penny on box
 P — puts penny on box
 T 'that's the pĕnny 'on the 'box/
 P òh/
 15 T (we have)
 P kèy/ .
 kèy/ —
 sǒrry/ (laughs) puts key on box
 T gòod/
-
- 20 T 'can you 'put . the keȳ . in ↑ frònt of the 'box/
 P — puts key in front of box
 T gòod/ —
 can you 'put the 'penny . be ↑ side the 'box/
 P — pĕnny — be'side —
 25 yèh/
 beside the 'box/ puts penny beside box

In discussing this example with T later, it emerged that she had made a conscious decision not to stress *penny* in line 23. She was trying to “catch P out” by not giving him the extra cue that the tonicity change would provide. Whether this is a desirable

therapeutic strategy is debatable, but from a linguistic point of view, the stimulus involved must be regarded as deviant.

These examples also illustrate a general organizational principle in structured language work, whereby the prosodic structure of T's stimulus is the main linguistic crutch on which P can rely in order to determine what he must do. The following example has a clearly defined prosodic structure. T has been asking P to point to single objects and is now proceeding to two objects. In line 1, therefore, *two* is obligatorily tonic, as it is the main item of new information. In line 2, the two items are each given their own tone unit, again appropriate to their “new” status. The task proves initially complex for P, however, who fails to respond; hence in line 5, T repeats the stimulus but this time simplifies the stimulus by the process of reduction referred to above (her omission of the definite article before *table* is not relevant for the present discussion; in passing, it should be noted that this makes T's utterance ungrammatical). The simplification does not help, so T reintroduces the opening stimulus (line 8), this time giving it a strong prosodic demarcation. *Can you show me* is here acting as a kind of “pivot,” as is common in drill work. P repeats the word *table* and uncertainly points to it, at which point T intervenes, aware that P is unlikely to complete the task successfully, and finishes the sentence (line 14), reintroducing the same prosodic parallelism as used in line 2.

- T 'now can you 'show me twô 'things 'at a 'time/ —
 “where's the tāble/ — and the bòok/” ‘slow tempo’
 P — (coughs)
 [də — tɛm:] — er
- 5 T 'table and the bòok/
 P ìn/
 — [pə . pə . 'teibi] —
- T can you shòw mé/ — 'table and the bòok/
 P [bɛ] . táble/ —
- 10 [pə . pə — bɛ . tə . bɛ] — points to table
 'yès/
 *thère/ ‘weak pronunciation’
 T *that's ríght/
 'there's the táble/ and 'there's the bòok/

CONCLUSION

Tonicity structure and function is but one aspect of intonation, which is only one dimension (albeit the most important) of nonsegmental phonology. It was chosen as an illustration because of its importance as a means of controlling and facilitating P's ability to comprehend and cooperate in clinical work. This chapter is deliberately selective in order to illustrate a particular issue, and thus ignores factors that would be considered in a more complete study. Primarily, in this connection, one should

note: (a) the need to carry out comparable descriptions of interaction in settings other than the structured ones used above [there is some evidence that the same factors obtain in the unstructured parts of T sessions, but I have no information as to whether similar issues arise outside the clinic in general conversation; for work in these areas, the use of a prosody profile (see ref. 6) may prove helpful]; (b) the need to relate tonicity to other nonsegmental and communicative variables known to be important [rate of utterance and accompanying kinesic activity (e.g., head movement) in particular].

Despite these limitations, the illustration has some value, not simply because tonicity is a phenomenon of importance in its own right, but also because it shows the interdependence of the input variables outlined above. In addition to controlling P's awareness of semantic relevance, it also contributes directly to his understanding of the structure of the session (modality) and of the part he has to play in it (pragmatics). It is the interaction of these and other input variables that is especially significant when it comes to demonstrating the efficacy of aphasia therapy and explicating the notion of progress in the aphasic patient. Thus the further description of these variables, perhaps using profile techniques, is an important future goal of aphasiology.

REFERENCES

1. Blumstein, S., and Goodglass, H. (1972): The perception of stress as a semantic cue in aphasia. *J. Speech Hear. Res.*, 15:800-806.
2. Code, C., and Müller, D. J., editors (1983): *Aphasia Therapy*. Edward Arnold, London.
3. Coltheart, M. (1983): Aphasia therapy research: A single case-study approach. In: *Aphasia Therapy*, edited by C. Code and D. J. Müller, pp. 193-202. Edward Arnold, London.
4. Crystal, D. (1979): *Working With LARSP*. Edward Arnold, London.
5. Crystal, D. (1981): *Clinical Linguistics*. Springer-Verlag, Wien.
6. Crystal, D. (1982): *Profiling Linguistic Disability*. Edward Arnold, London.
7. Crystal, D. (1985): Linguistic levels in aphasia. In: *Aphasia*, edited by J. Oxbury, M. A. Wyke, M. Coltheart, and R. Whurr. Butterworth, London.
8. Crystal, D., and Davy, D. (1969): *Investigating English Style*. Longman, London.
9. Crystal, D., and Davy, D. (1975): *Advanced Conversational English*. Longman, London.
10. Crystal, D., Fletcher, P., and Garman, M. (1976): *The Grammatical Analysis of Language Disability*. Edward Arnold, London.
11. David, R. (1983): Researching into the efficacy of aphasia therapy. In: *Aphasia Therapy*, edited by C. Code and D. J. Müller, pp. 15-24. Edward Arnold, London.
12. Foster, B. (1970): *The Changing English Language*. Penguin, Harmondsworth.
13. Goodglass, F., Fodor, I. F., and Schulhoff, C. (1967): Prosodic factors in grammar: Evidence from aphasia. *J. Speech Hear. Res.*, 10:5-20.
14. Hatfield, F. M., and Shewell, C. (1983): Some applications of linguistics to aphasia therapy. In: *Aphasia Therapy*, edited by C. Code and D. J. Müller, pp. 61-75. Edward Arnold, London.
15. Leech, G. N. (1983): *Principles of Pragmatics*. Longman, London.
16. Levinson, S. C. (1983): *Pragmatics*. Cambridge University Press, Cambridge.
17. Stubbs, M. (1983): *Discourse Analysis*. Blackwell, Oxford.