

The scope of clinical linguistics

Clinical linguistics is the application of the theories, methods and findings of linguistics (including phonetics) to the study of those clinical situations where disorders of language are diagnosed and treated. 'Language', in this context, subsumes all four modes of interaction: speech, listening, reading and writing. 'Clinical', in this context, subsumes all those situations where there is a remedial intention involved: the initial focus is on medical settings, but educational, psychological and social settings where remedial language work is carried on are by no means excluded.

Apart from the detail of the definition, it is its orientation which is important. It may be contrasted with the approach of many neurolinguists for example, who study clinical language data in order to gain insights about linguistic or neurological theory. This too might be referred to under the heading of 'clinical linguistics', but it is not the orientation I wish to develop for the present conference. For me, clinical linguistics is a branch of applied linguistics - though one about which it is difficult to generalise, because there are so few 'clinical linguists' around. What follows is therefore inevitably a personal account, based on the way I work in the University of Reading clinic, and on the kind of clinical analyses I and my colleagues have been developing in recent years.

To apply linguistics in the domain of speech and hearing pathology requires that the linguist, first and foremost, be aware of what counts as clinical criteria. When linguists are not aware of clinical criteria, they run the risk of their observations, no matter how well-intentioned, being inapplicable, for a variety of reasons. We must therefore begin with an explicit statement of what clinicians feel to be needed, in order to obtain progress in their work. Such points as the following have been routinely cited in clinical discussions, and I am happy to use them as a perspective within which to work: the cardinal importance of patient remediation as the end of the exercise; the need to integrate the range of intermediate clinical skills (screening, assessment, diagnosis) in relation to this end; the concern to integrate the methods and findings of the various remedial professions. Above all, I note the concern to develop an explicitly principled therapy, which can provide a basis for explaining both the successes and the failures in working with patients, and thus a more conscious professionalism. Clinical confidence comes when one is in a position to verify the efficacy of one's therapeutic strategies. Clinical insight comes when one's training enables one to see systemicness in a mass of data, and to make predictions about the patient's progress in response to teaching strategies. It is in relation to these two aims - clinical insight and confidence - that the application of linguistics can make its main contribution. (1)

The specific contributions of clinical linguistics can be summarised under eight headings:

- (i) the clarification of areas of confusion in the use of the traditional metalanguage of speech pathology;
- (ii) the systematic description of patient linguistic behaviour, therapist linguistic behaviour, and their interaction;

(iii) the analysis of these descriptions, in order to demonstrate the extent to which the patient is operating systematically;

(iv) the classification of patient linguistic behaviours, as part of the process of differential diagnosis;

(v) the assessment of patient linguistic behaviours, by demonstrating the patient's position on scales of approximation to linguistic norms;

(vi) the formulation of hypotheses for remediation of the patient's linguistic behaviour;

(vii) the evaluation of the outcome of these hypotheses, as treatment proceeds;

(viii) the evaluation of the remedial strategies used in intervention, insofar as linguistic variables are involved.

What has to be appreciated is that, while it is the later tasks that are central to the therapist's purpose, these are wholly dependent on the earlier tasks, in the above list. Remediation presupposes assessment, which presupposes analysis, which presupposes description. Without an adequate description, accordingly, one cannot guarantee the objective basis of one's work. I do not deny the value of the intuitive approach of the experienced therapist, but if this approach on occasion does not work, or if one wants to be able to explain the basis of one's successes and failures, the need for systematic description and analysis becomes paramount, as a foundation of enquiry.

It is an unfortunate fact of clinical life that developing the required confidence and insight about pathological linguistic behaviour takes a great deal of time. The point has to be recognised, and not apologised for. Clinical linguistic analyses are complex and time-consuming, because linguistic disability is a complex and extensive phenomenon, comprehending a considerable amount of significant individual variation between patients. Each patient's language requires individual assessment, and this requires the clinician to consider systematically, and often microanalytically, samples of data with reference to adult norms (which constitute the ultimate goal of remediation), norms of child development (which constitute immediate aims) and the constraints imposed by her own interaction with the patient (which provide the bridge between clinic and home background). The 'pathological analysis' involved is no more time-consuming than that required in other kinds of investigation of handicap; the unfortunate thing is that the speech clinician does not have the benefits of a fully-staffed path lab to assist her. This places her in an awkward, and often an impossible position, with regard to the professional demands made upon her in clinical practice. But the solution to this problem is not to water down the intellectual basis of her professionalism, by failing to acquire, or to use whenever possible, the relevant analytical knowledge; it is rather to press politically for more opportunities to use that knowledge routinely. Imagine the outcry if a doctor or surgeon proceeded to treat a patient without having done the relevant tests, on grounds of time! Either time would be found, extra staff would be appointed, or of course waiting lists would get longer. The solutions are administrative, not intellectual, and one comes to respect a profession which does not demean its intellectual integrity by accepting a poorer standard of service for administrative reasons. Speech pathology, in its concern for improving the quality of life, must develop a comparable sense of standards to that accepted in general medicine. With a fresh basis in degree coursework, the subject now has the opportunity. The opportunity would be wasted if it were not accompanied by a responsible attitude to data analysis in routine clinical practice.

In short, the clinician must be prepared to spend time in analysing patients' language samples. It will often amount to a whole morning or afternoon on a single patient - an outlay which may seem excessive in the short term (in the absence of the perspective outlined above), but which of course in the long term may seem trivial - and which may even save time, in the long term. It should also not be forgotten that familiarity breeds content in carrying out linguistic analyses: one should not judge a procedure by the time it takes to do it first time around; one can usually speed up by a factor of four, with practice. And lastly, it is often necessary to spend time on a patient simply because - one does not know what else to do with him!

Of course, none of this removes the responsibility from the linguist to devise procedures which are as simple and convenient to use as is commensurate with accuracy and illumination. He must simply remember that there are limits - that a procedure, if it becomes too short, becomes unreliable and unilluminating, because it fails to discriminate patients, or stages of development within the same patient. If he attempts to keep within these limits, then his results will be useful; and as long as he remembers to use Occam's razor at every opportunity, his procedure will be justifiable.

Within this frame of reference, it seems to me that there are two general directions in which clinical linguistics needs to progress during the 1980s. Firstly, there is the need to develop further some of the areas within which a great deal of work has already been done. In the fields of phonetics, phonology, morphology and syntax, there now exist several analytic procedures; but there remain several gaps in our application of recent research. The clinical application of ideas from dynamic models of phonetics (working out fully the implications of such a notion as 'coarticulation' for example), must surely be an important theme of the 80s. The development of analytic procedures to deal with intonation, rhythm, and other aspects of non-segmental phonology will be another. But for all the areas just mentioned, there is an urgent need to consider the relationship between the claims of the behavioural analyses and those of the medical analyses traditionally presented. For too long now, behavioural and medical models have been applied to patients along parallel and largely independent lines. It is a truism that there is no necessary correlation between a medical diagnosis and a behavioural one; but this does not mean that there is no correlation at all. Rather, a correlation has to be demonstrated - and often, this can only be demonstrated at the microanalytic level of analysis referred to above. Such micro-correlations will slowly emerge in the 80s.(2).

Secondly, the 80s will see the growth of several fresh areas for the application of linguistic notions. Chief amongst these will be clinical semantics, but the relevance of sociolinguistics and psycholinguistics is also clear. It is perhaps significant that this year sees the appearance of the first number of the Journal of Applied Psycholinguistics - and that clinical topics are very much to the fore in the editor's interpretation of this term. Given the relative immaturity of these areas compared with those referred to in the previous paragraph, and given the greater difficulty in controlling many of the variables involved, one must expect progress to be slow; but it will come.

In selecting topics for the present conference, accordingly, I felt it would be appropriate to choose themes which would reflect both of the above growth points within the subject. I have therefore chosen aspects of prosodic and grammatical analysis to illustrate the first, and aspects of semantic and sociolinguistic analysis to illustrate the second.

Prosody

The importance of the 'non-segmental' or 'suprasegmental' aspects of phonology to our understanding of linguistic handicap has been much neglected. And yet this area, and the more specific notions it subsumes (intonation, stress, rhythm, etc.) constitutes a crucial factor in doing grammatical work (e.g. in identifying what counts as a sentence, clause, etc.), or in specifying units for semantic or interactional analysis (request, command, prompt, etc.). In its own right, 'dysprosody' is recognised as a type of disorder, but I must emphasise here that this traditional clinical category was invariably given a phonetic, and not a phonological interpretation. It referred to such notions as monotone voice, or excessively high pitch. By contrast, the notion of 'prosodic disability' is a phonological notion, referring to abnormality in the patient's use of the system of contrasts operating in his language - an abnormal use of intonation, stress, rhythm, and so on. A patient may of course be both phonetically dysprosodic (speaking at a very high level, for instance) and phonologically disordered in his use of the intonation system of his language (confusing rises and falls in pitch, and thus being unclear about such semantic contrasts as stating and questioning). The important point to note is that these are in principle separable notions.

Within the field of non-segmental phonology, prosody generally refers to variability in pitch, loudness and speed of utterance, viewed singly or in combination. Of these, it is the systematic use of pitch in a language which has attracted most attention, under the heading of intonation, and it is here, also, that most categories of disability can be located. I shall thus focus on this topic in this paper.

The notion of an 'intonation disorder' is not a homogeneous one. There are several types of intonational disturbance, depending on which aspects of intonation form are affected; and similarly, there are several kinds of functional problem in the use of intonation. Intonation can be used to express attitudes, social roles and grammatical structure, for example, and each of these headings covers a wide range of possibilities. Under the heading of intonational form, three main characteristics have been isolated as being of particular importance. Speech is analysed, firstly, in terms of a sequence of tone units, or pitch-cum-rhythm contours. Secondly, each tone unit is analysed as having a primary peak of prominence, one of the words in the tone unit standing out by means of the pitch pattern, and thus becoming semantically prominent: this variable is known as tonicity. Thirdly, each prominent, or tonic syllable is uttered using one of a finite set of tones (rising, falling, level, etc.). To take an example, the sentence

he bought six apples and gave one to the little boy,
would normally be pronounced as two tone units, as follows:

he bought six apples/ and gave one to the little boy/
though it would be possible to insert more tone unit boundaries, if the speech became more emphatic or agitated. Within each tone unit, one word would be tonic - normally, the last lexical item in the tone unit:

he bought six apples/and gave one to the little boy/.

To bring the tonic syllable forward onto a different word is possible, but it would convey a somewhat different meaning: if six were stressed, for example, it would suggest a contrast is being drawn with some other number; if little, a contrast in size with some other boy. Lastly, the

normal tone to assign to the first tone unit would be rising (suggesting non-final status for the clause), and to the second tone unit falling (suggesting completion). The full transcription, so far, would thus be:

he bought six /ápples/ and gave one to the little boy/.

We could then add other indications of stress and pitch throughout the utterance, as is often done in intonational transcription, but these other variations add far less to the interpretation of the sentence than the ones mentioned so far, and they are not considered further in the present paper.

Based on these observations, we may now proceed to look at some of the kinds of disability which can be identified under each heading. Under the heading of tone-units, there are two main types of abnormality: too few tone units are used, compared with what would be expected for normal speech; or too many are used, when compared with normal speech. Too few tone units gives the impression of someone speaking 'without paying attention to punctuation.' The speech may be very rapid, as with cluttering, or some types of receptive aphasia, or it may be slow and ponderous, as in some types of mental retardation or expressive aphasia. Overuse of tone units is most noticeable in that kind of speech which emerges 'a word at a time', with each word being given a deliberate and careful pronunciation. In more advanced cases, an attempt is made to group words into some kind of tone-cum-rhythm unit, but the grouping does not correspond to what we would normally expect. Producing a sentence such as the man is kicking the ball, which would normally have a single tone unit, in the following ways would be considered abnormal:

the man/ is kicking/ the ball/
the/ man is/ kicking the/ ball/

the second being more seriously deviant than the first, (in that it fails to preserve the identity of the grammatical structure of the sentence).

Under the heading of tonicity, there are again two main types of abnormality: either items which are never normally tonic are made tonic by the patient; or, items which are normally tonic are not given any prominence by the patient. An example of the first would be if the patient stressed it in it's raining; of the second, this car is dirty, with car being prominent, when it was in fact the dirtiness that the patient wished to draw attention to. Placing the tonic stress on the wrong word can be extremely misleading and disruptive in conversation.

Under the heading of tone, not only is it possible to classify abnormal utterances in terms of deviant tonal patterns (i.e. tone types which fall outside the phonetic range characteristic of a language such as in English using a falling-level tone \searrow , which is not a normal feature of any dialect), it is also possible to think developmentally, in that there is now some evidence to suggest an order of emergence for the main tonal contrasts. Following an early period of indeterminate tone use, the child commences to make contrasts in pitch range (usually low vs. high, but sometimes allowing a mid range). Then determinate tones appear, usually in the order falling \rightarrow rising \rightarrow rising-falling \rightarrow falling-rising \rightarrow compound tones (i.e. fall plus rise, rise plus fall) - though 'usually' is perhaps too strong a word, given that so few children have been systematically studied. A possible developmental sequence, of course, is immediately suggestive of assessments in terms of delay, and this is how the information is used in the procedure outlined below.

Name Age Sample date Duration Type

TONE UNIT Total Av. words

Incomplete Indeterminate Stereotyped Imitation

STRUCTURES	CLAUSE	FUNCTIONS
	PHRASE	
	WORD	
	OTHER CL+ CL-	

TONE Data variants

Deviant

Summary	Other	N	W	↓	?↑	↑	"	∅	
									-
									˘
									ˊ
									^
									ˋ
									C
									?

TONICITY

		Imitation		Stereotyped	
SIMPLE	MARG	Non-final		Final	
		✓	x	✓	x
	COM P		N.F. + W.F.		N.F. + F.

OTHER
 Tone unit pitch
 Tone unit other

Prosodic features (TU+)
 Paralinguistic features

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What are the most relevant notions that may be extracted from the above, in relation to clinical practice? It would seem profitable to use the main theoretical and descriptive dimensions to construct a prosodic profile and one such profile is illustrated on p.

The main features of this profile relate to the three structural headings just outlined. For tone units, we note: the proportion of complete to incomplete tone units, along with any indeterminate cases; the number of stereotyped tone units, and of imitated tone units; and a statement of the use of a tone unit in relation to the grammatical structure of the sentence in which it is used - whether it is coterminous with a whole clause, a phrase, a word, or some intermediate word-sequence. For tonicity, we note: whether any compound tones are being used, and if so, where the second element of the compound is on the final item or not; for simple tone, whether the tonic item is final in the tone unit or non-final, and then, whether it is appropriately or inappropriately tonic; whether there are any cases of imitated tonicity; and lastly, whether the item on which the tonic stress occurs is lexical or grammatical. Under the heading of tone, a space is left in which to draw pitch contours, so that their relative height and direction can be seen at a glance; and these are then analysed in terms of the phonological contrasts falling, rising, etc., organised vertically in terms of their developmental sequence. On the horizontal plane, the other main phonological modifications to these tones are noted, e.g. whether a falling tone is being used with an extra-high or low onset, with extra stress, with a narrowed or widened width, and so on. (3).

While a chart of this kind can be of value in carrying out an assessment of the prosodic abnormality of a patient's speech, and in suggesting ideas for remediation, it says nothing about the interaction between therapist and patient, as far as prosody is concerned. Yet this is an important issue. The clinician's intonation can have a major influence on the patient's responses. The role of tonicity is particularly crucial in this respect: to alter the placement of the tonic syllable can give quite a different 'shape' to an utterance, and it is therefore not surprising that patients' abilities to recall, comprehend, repeat and respond are much affected by this variable. Examples of errors induced in patients by the clinician's tonicity can be illustrated by:

T There's a càt/
it's a l\ittle cat/
P there l\ittle/

or by a case of the conflict which can be set up if the item which is the focus of a remedial task is not given tonic reinforcement, as when T, working on verbs, says:

what's that man doing/

Here, there is a conflict between the demands of the grammar (which requires a verb in the response) and the demands of the intonation (which emphasise a noun).

Grammar: Some comments on the LARSP Procedure

Grammatical procedures developed for clinical purposes often seem extremely complex, at first sight; but what must not be forgotten is that they are nonetheless extremely simplified versions of the full grammars used in conventional linguistic analysis. What they leave out, or summarise under some neutral label (such as 'Other') may, for certain patients, be just as important as what they pay specific attention to. No clinical grammatical procedure tells the whole story. Conversely, all clinical grammatical procedures would claim to do no more than provide a first approximation to our understanding of the patient's grammatical system. What is important is that clinicians should be sensitive to the breadth and complexity of grammatical structure. One of the main purposes of LARSP is to provide

a means of sensitization. Whether one ends up using the profile chart with maximum efficiency is not so important as learning the principles on which such a chart was constructed, and developing a sense as to what grammatical analysis is all about.

The main characteristics of LARSP can be summarised under the following headings:

- (1) It is a single procedure, which aims to integrate the demands of screening, assessment and remediation; in this it contrasts with those procedures which deal with one of these tasks only, giving no guidance about the others.
- (2) In order to achieve this integration, two analytic dimensions are used: the descriptive dimension, which in principle allows for the comprehensive description of a sample of the patient's language (through the judicious use of the category of 'Other'); and the developmental dimension, which provides the main means of grading what would otherwise be a heterogeneous collection of constructions. We use the developmental dimension in all our work because we find it to be the most reliable and detailed means of carrying out the kind of differential diagnoses needed. Alternative gradings, involving such notions as psycholinguistic complexity, memory span, mean length of utterance, and so on, we have not found to be sufficiently self-consistent or discriminating.
- (3) The procedure involves the notion of a profile of disability, i.e. varying amounts of information are represented at different points of development and in relation to different kinds of structure. We give far more information about the range of grammatical structures encountered at the two-year-old stage than we do at the five-year-old stage, for example. Likewise, within a stage, some structures are selected for special attention, while others are left anonymous (the notion of 'Other' again). Our principles of selection and organisation here were, of course, clinically motivated: we attempted to put on the chart precisely those variables which we repeatedly found ourselves using in our daily clinical judgements. And now that the chart has been used on many thousands of patients, we feel that for the most part, our judgements, based on the trial period of its use, were correct. The only argument for omitting some of the descriptive categories from the chart, or for adding new ones, would be if (in the first case) one found that a certain category was never being used in the description of patient samples, and (in the second case) if one's patients were so persistently using a certain category that its representation on the chart would seem obligatory. Such modifications of the chart are in fact often introduced by clinical centres, in order to make the chart more appropriate to the needs of their own clinical populations; and we welcome this flexible use of the procedure.
- (4) It follows from this that a profile analysis is ultimately an intuitive one. Having obtained a sample of data, transcribed it, grammatically analysed it, and transferred the information about structures onto the profile chart, the next step is to 'step back' from the chart, as it were, and search for patterns that seem to be clinically significant. At each stage of development, there may be gaps in the use of structures which may be significant, or under-use of structures, or over-use of structures. One is looking for imbalance across linguistic levels: there ought to be a balance between the developing structures at clause level, phrase level and word level, for example, and usually there is not. What is not possible, using this procedure, is to

collapse all these variables in to a single 'score'. I do not find the notion of a single grammatical 'score' helpful, in clinical work. What is far more valuable is to scan a profile several times, looking for areas of strength and weakness, and generally trying to develop an intuitive feel of where the patient is, in terms of normal development. This is not to dismiss the value of statistical analyses of the data, when there is time and opportunity to do these (e.g.

establishing ratios of clause structures to phrase structures at a given stage); but this information must always be supportive and while it can often motivate hypotheses about patient abnormality, it should never be seen as a replacement of the intuitive process of hypothesis construction on which good clinical practice so often depends.

- (5) The profile chart is a summary of a sample of a patient's usage. It is not a statement of his ability, nor does it take a stand as to the distinction between comprehension and production. If a patient uses a structure X, in the sample we are analysing, no judgement is made as to whether the patient is 'in control' of X, fully comprehends it, would use it elsewhere, and so on. We simply observe that it has been used and then wait for the full profile description to suggest to us whether the level of the use of X is such that we would consider the usage 'normal', 'weak', or whatever. Similarly, the fact that a patient has failed to understand a structure, Y, which he has attempted to use, is a decision which is in principle different from noting down the fact that he has used Y in the first place - as opposed to W, X, Z...If necessary, one can devise a notation in which the patient's use of structures, as represented on the profile chart, can be divided into those structures that he has used and understood (in the clinician's judgement) and those which he has used and not understood, or partially understood. In this way, the chart can begin to be used as a guide to comprehension. But without this kind of notational modification, the chart is neutral on the matter.
- (6) Without wishing to appear to state the obvious, it must be stressed that LARSP is a grammatical procedure. In other words, it is appropriately used only with patients where there are grounds for believing that there are grammatical problems present. There would be little point in using the procedure on patients whose problems were exclusively phonological, semantic or pragmatic, for instance. The point is sometimes made, by way of criticism, that a LARSP analysis of, say, a fluent aphasic would be unilluminating - to which one can only agree, as, by definition, a grammatically fluent individual would not normally be expected to illustrate grammatical problems, and would thus not motivate the use of the procedure in the first place! If grammatical difficulties are suspected, of course, then this is another matter: we have analysed the grammar of receptive aphasics, stutterers, laryngectomees, and others, from this point of view, because there were grounds for thinking that there were additional problems of a grammatical kind to those known to be the basis of the condition.

A second implication of the emphasis on grammar, is that one must not expect to find in the profile chart information which it was never intended should be there. The "L" in LARSP is admittedly somewhat misleading, in this respect - but to have replaced it by GR for 'grammatical' would have produced an acronym which would have been even more unpalatable than the one we ended up with! What is specifically excluded from the profile chart is, accordingly: intonational information (e.g. one-element statements uttered with a high rising tone, and thus pragmatically functioning as 'questions', are not logged as questions on this chart,

but as statements - the prosodic and pragmatic information would be indicated elsewhere in one's account of the patient); semantic information (e.g. information about the types of noun or adjective used - a figure of 20 opposite Adj, for instance, says nothing about whether all these items are adjectives of colour, or whether a more varied range of adjectives is in use); or pragmatic information (i.e. the intention of the utterance - whether to persuade, inform, request, etc. - and its contribution to the sociolinguistic interaction between clinician and patient).

- (7) A profile chart is a reflection of the sample on which it is based. A great deal of care is thus necessary in obtaining one's samples, and in keeping records of what was done. A profile chart should never be inserted into a patient's case notes without a clear indication as to the kind of interaction involved (e.g. spontaneous speech, picture description, etc.), the nature of the clinical setting, who was involved, and so on. Once this perspective is provided, then one is much freer to use whatever kind of sample proves to be practicable and useful. People often ask what is an ideal length of sample, but there is no theoretically valid answer. Perhaps the best answer is: one takes a sample which is sufficiently long to enable a clear profile to emerge. In some cases, a five minute sample will suffice to produce a quite clear picture. In other cases, one may need a half hour or more, over a range of tasks. After each sample, moreover, it is always valuable for the clinician to append a note to the chart giving her opinion as to whether the sample was representative of the patient's usage, or whether the patient could do better, 'wasn't himself', and so on. Such comments prove invaluable when comparing profiles taken over a period of time.

The reason why we recommend a half-hour sample in our initial account of the LARSP procedure, is that we wished to suggest an optimal timespan for those interested in carrying out analyses with a research aim in mind. Obviously, if we want to develop clinical descriptions of groups of patients, then we must ensure that our sampling procedure is as standard as we can make it - otherwise statistical analyses would be much more difficult to carry out, for instance. This is also why we recommend that the sample be broken down into two 15-minute categories, reflecting two very different kinds of language (talk about the immediate environment, and talk about the outside world): the two subsamples usually produce a much greater range of tense forms, deictic forms, sequencing constructions, and the like, than would have been provided by a single context. But once again, we do not make this a sine qua non of the procedure. If one is faced with a patient who is - for want of a better word - recalcitrant, and where it proves impossible to obtain a sample of the recommended type, then in the interests of clinical realism, one gets what one can get. A five minute sample, using elicited imitation, can be illuminating when grammatically analysed. Samples of writing, signing, or other forms of communication could also be analysed, if the communication systems involve a grammatical dimension.

A similar pragmatic answer has to be given to the question: how often does one profile a patient? The answer is: as often as is necessary. A full, 30-minute analysis will often provide enough ideas about remedial activities to keep a clinician occupied for quite some time. Only when it is felt necessary to make a check on what progress has been made, or when one runs out of ideas, might it be useful to do a follow-up profile. Some centres do routinely re-profile their pupils once a term, or once a year - but this depends very much on local factors, such as the availability of trained staff.

- (8) Concerning the transcription of a sample of data, two general points should be stressed. First, it is in relation to transcription that the biggest outlay of clinician's time is made, and therefore any saving here is likely to be great. If one can do without the transcription, by going directly from the tape to the profile chart, so much the better. This can be done fairly easily with patients who are saying very little very slowly; it is of course impossible for fluent patients operating erratically at, say, LARSP Stage V. Secondly, if a transcription has to be made, then one should always do it oneself - and not treat it as a mechanical task to be handed to an administrative assistant. One can learn a tremendous amount about a patient from the simple discipline of listening to him (and to oneself), and realising how difficult he is to understand away from the context of the recording. In any case, the untrained assistant will be unable to impose the crucial information about the prosodic organisation of the language which it ought to be within the ability of the clinician to provide. I say no more about this last point, except to add that an admission of difficulty in the transcription of intonation, stress and pause in doing LARSP analyses is not a comment about the LARSP procedure as such, but about the level of one's professional competence as a whole.

The above points deal with some of the comments and queries which emerge early on when people take up the LARSP approach and try to use it. Most of the points are matters of principle and technique - learning to use the 'tools of the trade', as it were. Concentrating on these matters of procedure is inevitable, in the present state of the art, but it is also unfortunate, as it distracts from the real point of procedures of this kind, which is to generate hypotheses concerning remediation. The main aim of LARSP is not to make assessments, but to generate hypotheses about the best teaching paths to follow. The assessments are an essential means to this end, but they are not the end in itself. What happens is this: the interpretation of a profile chart leads one to the view that a particular structure, Q, needs work. A session is then arranged in which Q is given attention, and the patient's progress is monitored, as is the influence of Q on the other structures he has already learned, or is in the process of learning. What should be noted is that in order to make this jump from profile chart to remediation, it is necessary to go via the data-base from which the sample was derived. If it is felt necessary to work on, say, Verb-Object constructions, then the question for the clinician must be: which verb-object constructions? Part of the answer will depend on which verb P has been using already, and which nouns he has been using as goals of (unspecified) actions. The clinician will presumably want to introduce the unfamiliar structure using vocabulary (and, indeed, grammatical categories and roles) which are maximally familiar to P, as far as she can tell. So it will be worth her while to go back to the data of the sample (e.g. the transcript) and go through it quickly to see what kinds of verbs and nouns might be introduced. She might, of course, use other sources of information, for this purpose, if such are available. Or she might use an a priori method of teaching, always beginning with a certain type of verb-noun construction on general grounds (e.g. that the events are easy to draw, or to act, or are perceptually clear). But there is always a risk involved in working with such principles, namely, that they may distance the patient from the linguistic territory which he finds most familiar, and may be somewhat arbitrary, not related to any clear developmental theory. Such risks are usually more obvious when working with adult language patients than with children - but they are always present. The desirability of always keeping a double-record of a sample - in the form of both a profile chart and a transcript - is thus underlined.

The relationship between data and profile can be shown by following up a profile analysis where the initial account was difficult to interpret. A language-delayed boy of five had considerable difficulty at the two- and three-element stages of clausal development, and had a fair command of the associated phrase structures, but his use of auxiliary verbs and verb endings was apparently erratic. This can be seen from the following sample of data, in which the relevant verb phrases are listed as they occurred in a five minute exercise describing the events in a picture book:

man walking/	man eating dinner/
man is fall down/	man sitting now/
man smiling/	man running/
man kick ball/	man is jump/

At no point did the patient produce the correct form of the present tense: man is walking, etc. The profile chart was accordingly somewhat confusing, with approximately equal numbers of correct vs. incorrect uses of auxiliary and -ing. In order to clarify the problem, an obvious first step is to list the sentences on the basis of their formal characteristics - as if they were different word-classes in a foreign language:

man walking/	man is fall down/	man kick ball/
man smiling/	man is jump/	
man eating dinner/		
man sitting now/		
man running/		

The next step is to scrutinise the groupings, to see whether there is any formal or semantic reason for the patterns being the way they are. For example, there are many verbs in English that do not normally take an -ing ending (e.g. seem, know, like) - but these do not seem to be the ones. Perhaps it is something to do with phonological structure - say, monosyllabic verbs allowing an -ing ending, polysyllabic verbs not - but again, there is nothing obvious that we might say about one group that did not apply also to the others. From a semantic point of view, is there perhaps something in common between walk/smile/eat/sit/run which distinguishes them from the verbs in the other groups? At this point, in dealing with the inter-relationship between grammatical and semantic categories, it is important to be aware of any hypotheses which have been proposed in the psycholinguistic or language acquisition literature - especially the latter, where studies may have brought to light systems of grammatical classification and interpretation which are not those normally used in the adult language, and which might otherwise be missed by the process of normal adult introspection. One such system seems particularly relevant, namely, the way in which many children make a distinction in their use of verbs based on the salient characteristics of the activities involved - in particular, whether the action in question involves a change of state of the entities involved in the action or no such change of state. Activities such as 'fall over', 'kick', and 'jump' are all clearly change of state activities, whereas activities such as 'think', 'look' and 'breathe' are not. Unfortunately, the picture-book presentation of the stimuli tends to reduce the potential of this distinction, in all but the most dramatic cases: pictures of people eating, running and jumping are invariably static - people frozen in mid-air, or with a fork half-way to their mouths. There would be very little to choose between the running and the jumping in this respect.

But the idea of the mode of activity is a good one, and has frequently been referred to in language acquisition studies. Perhaps there are other characteristics of change of state verbs which might attract the attention of a child learning language? There are presumably three main possibilities: activities which have a discrete starting-point; activities which have a clear limit to their duration; and activities which have a clear finishing-point. For the present sample of data, these distinctions are relevant indeed: there are no grounds for using the first (when the person in the picture starts to walk is just as unclear as when he starts to kick), but the other two criteria provide a relevant basis of contrast: walk, smile, eat, sit and run are of indeterminate duration, whereas fall down, jump and kick have a more momentary duration; and whereas the former have no clear end-point, the latter have a definite end-point. There is a clear end to the activities of kicking, falling down and jumping, whereas there is no comparable definiteness about the finishing of the other activities.

This analysis now becomes a hypothesis against which to measure the usage of the patient. There is of course no way of knowing in advance why the patient may have chosen to classify his verbs in this way: on the other hand, it should be pointed out that, if he is going to classify his verbs at all, there are a very limited number of logical paths available for him to follow. He may choose any one of six possible interpretations for the use of is vs. ing in relation to this classification:

(1) He may think that the way English marks end-point verbs is by using the morpheme is, with ing or zero being used for other verbs; if he speaks according to this hypothesis, he will produce

man is fall over/ man is kick ball/	vs.	man walk(ing)/ man eat(ing)/
--	-----	---------------------------------

(2) He may think that the way English marks end-point verbs is by using the morpheme ing, with is or zero being used for other verbs; if he speaks according to this hypothesis, he will produce

man falling over/ man kicking ball/	vs.	man (is) walk/ man (is) eat/
--	-----	---------------------------------

(3) He may think that the way English marks verbs without end-points is by using the morpheme is, with ing or zero being used for other verbs; if he speaks according to this hypothesis, he will produce

man is walk/ man is eat/	vs.	man fall(ing) over/ man kick(ing) ball/
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(4) He may think that the way English marks verbs without end-points is by using the morpheme ing, with is or zero being used for other verbs; if he speaks according to this hypothesis, he will produce

man walking/ man eating/	vs.	man (is) fall/ man (is) kick/
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(5) He may think that the way English marks end-point verbs is by adding the morpheme is, and verbs without end-points by adding the morpheme ing; if he speaks according to this hypothesis, he will produce

man is fall over/ man is kick ball/	vs.	man walking/ man eating/
--	-----	-----------------------------

(6) He may think that the way English marks end-point verbs is by adding the morpheme ing, and verbs without end-points by adding the morpheme is; if he speaks according to this hypothesis, he will produce

man falling over/ man kicking ball/	vs.	man is walk/ man is eat/
--	-----	-----------------------------

Given this range of possible interpretations, it would seem from the data listed above that P is operating according to the fourth hypothesis. The point can be checked immediately, by introducing a wider range of verbs in the next remedial session, and seeing whether we can predict P's behaviour, on the basis of the hypothesis. If we are right, he ought to say man swimming and not man swim or man is swim, for example. If we are wrong, the exercise has not been wasted, for it has eliminated a possibility, and suggested a promising direction for further thinking. It may be, for example, that the general line of reasoning is correct, but that we were wrong to restrict the field to be and ing in the first place. Several other factors may need to be followed up and eliminated before a solution to P's problem is found.

Working routinely with grammatical profiles leads us inevitably to intricate detective-work of the above type, where the aim is to think predictively about P's behaviour. The initial grammatical statement, concerning P's use or misuse of structure, is only a starting-point, which sensitises us to areas of grammar worth investigating in greater detail. It should also be noted how any such follow-up requires repeated reference to vocabulary, and to the context in which the structures were elicited. In most cases of grammatical disability, micro-analysis leads us inexorably in the direction of semantics. (4)

Semantics

Semantics, the study of the way meaning is structured in language, is a major growth area in contemporary linguistics, and without doubt the field which will exercise most influence on clinical thinking in the next decade, as semantic models come to be more familiar. The range and complexity of the field is such that it is possible only to indicate some of the main characteristics of semantic investigation, and to provide an example or two of its relevance. A fuller account is given elsewhere. (5)

(1) The linguist, in his approach to semantics, introduces certain emphases which can distinguish his work from that of the other disciplines also interested in meaning (philosophers, literary critics, and so on). First, he stresses the need for synchronic description, as well as the diachronic study of meaning, (the latter providing the sole emphasis of traditional language studies). Secondly, he is primarily concerned with the properties of natural language (as opposed to 'logical' languages), and with the semantic characteristics of naturalistic everyday speech (as distinct from the carefully constructed contrasts found in philosophical discussion, or in the experimental situations of psychology). Thirdly, a major focus is on the relationship between meaning and other levels of analyses, especially phonology and grammar, as part of the aim of providing an integrated theory of linguistic behaviour. Fourthly, he is much involved with comparative study - investigating the similarities and differences in the way meaning is structured across different dialects, styles, languages and cultures; and these days, there is increasing involvement with semantic universals - those properties of meaning manifested in the linguistic expression of all languages. Fifthly, and especially, he is concerned with the establishment of the minimal units of semantic description, through the detailed analysis of sets of words and of the linguistic contexts in which they occur.

(2) Given these emphases, it is particularly important for the clinician to be aware of the difference between linguistic semantics and certain other

notions with which it is often confused. Firstly, semantics is not to be identified with conceptualisation, cognition, and other such notions that are part of the psychologist's attempt to understand behaviour and its development. Cognitive or conceptual skills are not the same as semantic skills; the properties of cognition plainly extend well beyond whatever is needed to account for linguistic behaviour. Semantics is patently a language-specific approach in the first instance, whereas cognitive studies are not. Putting this another way, French, English and Chinese children may all develop, say, object permanence at around the same time and in the same way, but the manner in which they express their awareness, using the lexical/grammatical/phonological resources of their language, will differ. It is the business of the linguistic semanticist to study the way these resources are organised, and relate the linguistic structures he discovers to those conceptual structures, or schemas, postulated to account for behavioural development in general.

Secondly, semantics must not be confused with comprehension. Comprehension, or lack of comprehension, is a feature of a person's performance with reference to language: he understands, or fails to understand, the meaning of language. It is not to be identified with meaning, which needs to be specified separately. This distinction is made at other language levels also. We may specify phonological units and structure without reference to how efficient a person is at producing or understanding (i.e. discriminating) them; we may specify grammatical units and structure again without presupposing how well a person can express or comprehend them; and likewise with semantics, we can specify semantic units and structure without reference to the ability of an individual to comprehend or produce them. Put like this, the point is perhaps an obvious one; but it is nonetheless common to find clinicians who, having carried out a comprehension test, will assume that they have thereby done a semantic analysis. On the contrary: comprehension tests involve grammatical, phonological and semantic information; and the selection and grading of the semantic features of the test needs to be independently evaluated.

Thirdly, semantics must be distinguished from the direct study of the objects, entities, events, states of affairs, etc. in the external world - the province of chemists, geologists, historians, and others. Rather less obviously, neither is semantics primarily concerned with the study of the way language is used to refer to these states of affairs (the 'reference' of language). To understand the domain of linguistic semantics, a basic distinction has to be drawn between the study of reference and that of sense. The primary business of semantics is to study the latter - how people make linguistic units (words, sentences, etc.) relate to each other, and thus how they 'make sense' of them. The 'internal sense' of most conversations is appreciated without any direct reference to the external world at all - for obvious reasons (such as that we can point to what we are talking about for only a tiny fraction of what we want to say). Usually, the sense of an unknown word will be clarified by the speaker using other words (as in the whole process of dictionary definition); the sense of an obscure sentence will be clarified by providing an alternative formulation of the sentence (a paraphrase of it). It is this internal sense structure which is the main focus of semantics - how words and sentences define each other - and this way of approaching the subject has accordingly come to be known as structural semantics.

(3) One of the most promising approaches to lexical semantic analysis has come from the application of structuralist ideas. The structuralist view sees language as analysable in terms of an underlying network of relationships between elements, or units. There are, accordingly, two main questions for semantics: (a) what are the units of the semantic system? and (b) how are they inter-related? The answer to these questions will vary

somewhat depending on the formal features whose meaning is being investigated (whether in phonology, grammar or vocabulary), but most attention has been paid to vocabulary analysis, and it is here that several important notions have developed that are directly applicable to clinical data. Perhaps the most fundamental point arises out of a consideration of whether the notion of word constitutes a valid unit for semantic analysis. Traditional language study would say that it was - but there are serious problems.

The ambiguity of the term word is routinely pointed out in introductory textbooks. Three main senses are usually distinguished (though terminology varies):

(i) words are the physically definable units bounded by space in writing, and sometimes marked by pause and juncture features in speech; such 'word-forms' are often referred to as 'orthographic words' (for writing) and 'phonological words' (for speech); they can be identified without any reference to the meaning they express.

(ii) words are also units of grammar, which operate in strings in the construction of phrases, clauses and sentences, and which are themselves constructed out of morphemes; notions such as 'word order', or measuring sentence length in terms of words illustrate this sense; this is also a formal notion, which does not rely on the meanings the individual words express.

(iii) in a more abstract sense, a word is the unit underlying a set of variant grammatical forms; for example, walk, walks, walking and walked are all variants of the 'word' walk. There is obviously scope for considerable confusion here, if the term 'word' is allowed both for the underlying form and its variants; and as a result, fresh terminology has developed to identify the underlying form. The term lexeme, or lexical item refers to the underlying units involved, 'word' being then reserved for grammatical use. Lexemes are thus the minimal units of vocabulary, and thus of semantics (cf. 'phonemes' in phonology). It is lexemes which tend to be listed as the head-words in dictionary entries.

Having identified a unit for structural semantic analysis, the general principle of the structuralist approach also needs to be borne in mind; in a structuralist network of relationships, the units have no validity apart from the relations (of equivalence, contrast, etc.) which hold between them, and it is this network of relations which constitutes the structure of the system. This view was originally developed for phonological studies, and later for grammar, and in these fields it is not difficult to demonstrate the concepts involved: for example, to ask 'what is /p/?' is to ask a question which cannot be answered without reference to the contrasts /p/ has with other units, and in the end it is the bases of the contrast themselves (voicing, etc.) which turn out to be crucial. The units of phonology have no independent existence: they are identified solely by the relations they contract. A parallel argument obtains for semantic analysis, where lexemes are also mutually dependent (as is evidenced in dictionaries, where the definition of any lexeme requires that other lexemes be used). The study of vocabulary thus becomes the study of the multidimensional network of relationships which obtain between lexemes, and the main aim of structural semantics is to describe these networks, and to establish a set of principles governing the lexical organisation of language.

(4) The fact that the lexicon is organised in certain ways is the main reason for the inadequacy of the traditional measure of semantic development - vocabulary counting. Estimates of the number of words a person commands at any given time are notoriously unreliable, and rarely illuminating. The unreliability is due to several factors, such as:

- uncertainty as to what should be counted as a word (e.g. is I'll one word or two?)
- should we be counting words or (what in this paper we are calling) lexemes? For example is kick the bucket to be counted as three items, just as kick the cat?
- should we include passive as well as active vocabulary (i.e. vocabulary understood, but not in active use)? If the former, how do we ensure that a word is in active use? Does a single instance of a word suffice, or should a child have used a word several times? If the latter, how many times?
- what do we do if a child uses a word half-correctly? For example, the child who called a picture of a brontosaurus a pterodactyl at least knew that it was something to do with dinosaurs, but he did not get it right.
- should this word therefore be included, or excluded from a vocabulary count?
- how representative are the samples of language anyway?

Because of differences in counting method, due to these uncertainties, estimates of the average size of vocabulary vary wildly: 5 year olds, for example, have been estimated to have anything between two and ten thousand words.

But even if an accurate estimate of vocabulary size can be made, how illuminating will this be? The limitations here are several:

- there seems little point in counting forms without reference to the range of meaning that a person intends to express by their use; reference to any general dictionary will show that most words are polysemic (the commonest words most of all); a child learning a word, however, does not learn all of its potential meaning at once, but will learn it in certain senses only; perhaps it is therefore the senses of words that should be counted, if counting is to be done at all?
- counting words, or their sense, in isolation from grammatical context is misleading and often impossible; we often know the meaning of a word only by referring to the grammatical context in which it is used.
- knowing that a child uses a word is only the beginning of the story: more important is the question of how well he is using it, in relation to how many and what kind of situations; for example, three children, A, B, C, may all use the lexeme cold, but if A uses it only for 'water', whereas B uses it for temperature generally, and C uses it, in addition, for grim faces, it would not be reasonable to rate all three children as being the 'same'.

For such reasons, a clinical semantic analysis takes a lexeme inventory only as a starting point, and will place little store on the total number of lexemes counted, or the frequency of use of each lexeme. There are no norms against which to rate individual differences in lexeme use, which are very marked; and general comments about 'poor vocabulary' are so vague as to be of little help. A lexeme inventory does have some general interest, in that it suggests something about the interest levels of the patient, and it will provide the analyst with clues about the viable semantic fields within which he will have to work; but by itself it can not provide meaningful information, either about assessment or about remediation. For this, we need to investigate the structural relationships between the lexemes, and to work out the principles governing P's lexical organisation.

(5) Semantic analysis of the lexicon constitutes the bulk of any analysis of meaning, but it would be wrong to assume that meaning is restricted to the lexical level. On the contrary; it can be argued that all levels of linguistic organisation contribute in some way to the meaning of an utterance - phonetic, phonological and grammatical. The various categories and constructions of grammar, for example, can be discussed from both formal and semantic points of view. The category of number in English, for instance, is formally a two-term system involving an unmarked singular form and a marker of plurality; semantically, it usually conveys the difference between 'one' and 'more than one' (though there are many exceptions). Or again, a construction such as a grammatical statement can be identified formally (e.g. Subject + Verb) and also semantically (e.g. Actor + Action). It is never an easy matter to state the correspondence between formal and semantic analyses, and very little progress has been made in constructing models of the semantic side of this correspondence, but what is already evident is that there are generalisations to be made which go well beyond the terms of reference of, say, the profile descriptions referred to above, and which often provide a more illuminating analysis of a clinical condition. One such makes use of the notion which different theories refer to as the 'case role', 'valency' or 'semantic function' of an element of clause structure. Without restricting the discussion to any one theoretical approach, it is evident that the main elements of sentence structure (Subject, Verb, Object, Complement, Adverbial, in LARSP terms) can be studied, not only in terms of their syntactic form and distribution in the clause, but also in terms of the type of information that such grammatical patterns convey. An early attempt to define the semantic relations underlying these patterns was that of Charles Fillmore, whose notion of 'case grammar' analysed surface grammatical patterns in terms of such notions as 'agentive', 'instrumental' and 'locative'. The same instrumental 'case' for example, was claimed to underlie the phrase (with)the key in each of the following sentences:
(i) the key opened the door, (ii) he used the key to open the door,
(iii) the door was opened with the key - despite the fact that, from a surface grammatical viewpoint, the key is Subject in (i), Object in (ii) and Adverbial in (iii). It was argued that semantic identities of this kind are obscured by the traditional kinds of formal analysis.

Some clinical examples. A series of semantic functions may appear in an abnormal sequence, e.g. in a sentence a time expression may always occur first, or the agent occur last. Or again, because of poor grammatical expression, it may be unclear what semantic function a particular construction has - a common problem in aphasic speech. In one exchange, the clinician asked P to tell her about a TV programme P had seen the previous evening: P replied, an ugly man. The problem with such an utterance is not its syntactic form, nor the comprehension of the lexemes (there was an ugly man in the film), but what semantic function the phrase is supposed to have. Is the ugly man the actor of some putative sentence ('the man was doing something'), or the goal of some action ('someone did something to the man'), or is he seen as a causative factor ('something happened on account of his presence'), and so on? If P says nothing further, the clinician must choose one interpretation from this range, in the hope of eliciting more language: she must, in other words, provide the noun phrase with a semantic function, and trust that the interpretation is compatible with P's intentions.

At an opposite extreme, P may produce long strings of grammatical elements, the majority of whose semantic function is unclear, and where there is little clear sequencing, other than a loose associative link. This is particularly noticeable with the variety of patterns that characterises fluent aphasic speech. In such patients, it is unlikely that conventional grammatical analysis will help, in carrying out an assessment, or providing guidelines for the

clinician's interaction. Unless P shows production or comprehension limitations clearly explicable in developmental terms, there is little basis for direct grammatical intervention; and in the more fluent kinds of speech, these limitations are not at all evident. Semantic analysis of this kind of speech will however work only if certain conditions are fulfilled. In particular, a reasonable proportion of the speech must be phonologically intelligible; and P's semantic intentions must be able to be interpreted, either from the clinician's knowledge of P (or of the events that P is referring to), or by using an intermediary (such as P's spouse or parent). Then, one must put on one side those features of the sample which are performance inadequacies almost certainly irrelevant to the analysis, and those which are impossible to analyse, under any circumstances. The aim is to reduce the sample to its nucleus of apparently coherent information. For clinicians who have been used to focussing primarily on the jargon, automatic phrasing, and so on of aphasic speech, this may seem to be a radical change of emphasis, but it is an essential one, if progress is to be made in understanding P's semantic system. From the semantic point of view, the automatic speech, etc., is least important. In this way, extract (a) below can be reduced to the form (b), the justification being that (a) is not directly assessable, whereas (b) is:

(a) you know/ but er . I mean/ er. Mike/ and . Eddy/ . he's at Newbury/
 he likes down there/ and er . that's it/ see/ - so they just got . real .
 what's that/ . the only thing is/ (3 sylls) what'sname (2 sylls)
 what'sname (1 syll) what'sname/ - (2 sylls) otherwise/ it's only for
 one - Sunday/ and they only . it it I mean there really is see/

(b) Mike/ and Eddy/ he's at Newbury/ he likes down there/ it's only for
 one Sunday/

The pattern that stands out is that in each of these sentences there is really only one major semantic function expressed. The first sentence in (b) expresses a specific ACTOR: the second expresses a specific LOCATION, with the agent being referred to by a pro-form; the third sentence expresses a specific STATIVE, with both agent and location now covered by the pro-forms; and the last sentence expresses a specific TEMPORALITY, with the subject slot unclear semantically, but probably referring to the action of going to the golf-course (referred to previously), and thus a pro-form. P seems limited to a single specific semantic notion per sentence. To conflate the first three sentences into, say Mike and Eddy like living in Newbury, is presumably quite beyond him. The possibilities of an interesting assessment in semantic terms, as one applies this hypothesis to other utterances of P throughout the sample, are evident, as are the implications for remediation. Presumably the clinician needs to monitor her stimuli carefully, in the light of P's restricted processing abilities. It might be, for example, that P's poorer responses are those where T produces stimuli of greatest semantic complexity. His best responses might be when T gives a stimulus just one unit more complex than the level at which P seems to be functioning.

(6) There is no time to go into the implications of the developmental model of investigation for semantic analysis. Plainly, both lexical and grammatical semantics can be pursued from the point of view of the child's learning of the relations involved, and normative scales constructed which can then be applied directly to clinical settings. For a first review of the relationship between these fields, reference can be made to Bloom & Lahey (1978). (6)

Sociolinguistics

At several points I have referred to the importance of studying linguistic interaction as part of our understanding of the nature and development of disability, and the most relevant branch of linguistics would seem to be sociolinguistics. In a putative 'clinical sociolinguistics', there would be three main themes: an account of interaction in theoretical terms (partly social, social psychological and linguistic); a descriptive framework within which the relevant linguistic variables could be identified and classified; and a characterisation of the range of linguistic interactional disabilities encountered in the clinical population. In the present state of knowledge, it is not possible to say a great deal about the last two themes, but it is possible to illustrate the type of information involved.

An important characteristic of remedial interaction is that it is typically a three-way process - this contrasting with the two-way interactions found in most normal adult conversations. A normal conversation proceeds in a series of overlapping dyads: A speaks to B, and B replies, but in the course of replying produces a stimulus to which A in turn will reply; A's reply then acts as a further stimulus to B; and so on. Any clearly definable sequence involving a change of speaker is known as a conversational 'turn', and the rules governing turn-taking have been a particular focus of attention in recent years. The analysis turns out to be more complex than might appear at first sight because of the way real conversations operate in practice - full of interruptions, re-phrasings and parallel speech (the various 'attention signals', such as mhm, yeah and I see, as well as the non-verbal features which we use while someone else is speaking). But the notion of a two-way turn, consisting of stimulus and response, seems valid enough, and indeed rather obvious. What is less obvious is the way in which speakers depart from this norm to achieve certain communicative or social effects, and here the distinctiveness of remedial conversation is a primary example. The three-way nature of the conversational turn is best illustrated by such sequences as:

T: 'where's the car/
P: in the garage/
T: in the garage/ 'good boy/

What we have here is a clinical stimulus, a patient response and then a clinical reaction to the response. Providing such paraphrases and reactions of praise to our interlocutors in adult speech would be extremely odd, to say the least!

A profile of clinical linguistic interaction thus has to take into account three variables, not two. A comprehensive typology of such interactions does not seem to have been made, but at least the following exist:

	<u>Example</u>
1. T stimulus	T do you like f'ootball/
P zero response	P ---
T new/rephrased stimulus	T you were 'playing f'ootball with the b'oyz/ P --- T 'that 'book's all about f'ootball/ isn't it/ P ---

- | | | |
|----|---|---|
| 2. | T stimulus
P response
T reaction
new stimulus | T 'what's that 'called/
P a ball/
T 'good boy/ -
and 'what's that 'called/ |
| 3. | T stimulus
P response
T new stimulus
P response | T 'what 'colour's this 'man's 'shirt/
P yellow/
T 'what 'colour's this/
P blue/ |
| 4. | T stimulus

P response
T reaction + new stimulus
(in same sentence) | T and will he 'not come back
to see her/
P not expect he will/
T you 'don't expect he will
P m/ |
| 5. | P stimulus
T response
new stimulus
P response | P 'I have Xmas 'toy/
T you've 'got a 'new toy/
'what is it/
P car/ |
| 6. | P stimulus

T response
P new stimulus
T response | P 'now 'what about/ er - next
'week/ you 'going to erm -
'give me a letter/
T 'that's right/
P 'where is it/
T it's there/ |
| 7. | P stimulus
T response + new stimulus)
(in same sentence)
P response | P some 'people 'see in window/
T 'what are they doing/

P looking/ |
| 8. | T stimulus
P new stimulus
T new stimulus | T 'I've 'got a 'blue car/
P 'I got 'red horse/
T 'I've 'got a 'black train/
P 'I got 'green cow/ |

We can group these into certain more general types:

T-initiations

A. Failure - type 1 above

B. Primitive - types 2 and 3 above. In the first of these, the elementary pattern of stimulus → response is reinforced by the addition of a reaction. In the second, this has been dropped, and the interaction is thus somewhat more advanced in the direction of normal conversation. But in its regularity it is still very primitive.

C. Advanced - types 4 and 8. Type 8 is a somewhat exceptional interaction, only found in the context of a turn-taking game (in the above example, taking things out of a bag). It is type 4 which is closest to the conversational norm found in non-clinical settings.

P-initiations

A. Single - type 5. P initiates a conversational turn, but T then takes the initiative, and P falls into a response pattern above.

B. Recurrent - type 6. P takes the initiative on repeated occasions, but T's responses are very limited.

C. Normal - type 7. P takes the initiative, and T responds to him as he would to anyone else, providing a response and a new stimulus, to which P then responds.

There are several differences here with adult conversational norms. Even in the P-initiated interactions, it is T who has the initiative: the 'conversational ball' does not pass so readily backwards and forwards as it does in normal settings. There is an absence of P reactions: P does not usually use mhm (etc.) while T is speaking - unless it is to over-use it (as with much aphasic speech). The clinical interactions are far too symmetrical to be normal: in normal conversations, blocks of sentences alternate, as the conversational initiative changes; conversations where the speakers say equivalent amounts in rotation are unusual (except in prepared arguments). There are few interpolations or interruptions in clinical interaction. And generally, there is a lack of concern on P's part to maintain the 'felicity conditions' necessary to promote a coherent conversation.

An interaction typology of this kind does not take us very far, however: it needs to be followed up immediately by a more detailed analysis of the stimulus types used by T, and of the types of response and reaction which follow. It is at this level that factors will emerge indicating in what respects P's interaction performance is being facilitated or hindered by T's interventions. Unfortunately there are several theoretical problems in the way of devising adequate descriptive frameworks at this level. Stimuli can be classified not only in grammatical or semantic terms, but also in terms of their pragmatic function. 'Pragmatics' is a loosely-used term in contemporary linguistics which refers to the study of language from the point of view of the user, especially of the choices he makes and the constraints he encounters in using language in social interaction, and the effects his use of language has on other participants in an act of communication. It is in trying to make such notions as 'choices', 'constraints' and 'effects' precise that difficulties arise. It is not easy to make an exhaustive list of all the factors which have to be taken into account in order to understand the social intent behind a sentence. If someone says 'I'm cold', for example, it might be a simple statement of fact, a statement made in order to keep conversation going, an implied request for someone else's coat, a suggestion that a window be shut, and so on. Moreover, whatever the intended meaning in the mind of the speaker, there is always the possibility that what he says may be misinterpreted by the hearer, and a different effect produced from the one intended. All these variables constitute the focus of speech-act theory - the 'act of speaking' being defined with reference to the speaker's intentions (the so-called 'illocutionary' force of his utterance) and the effects he achieves on the listener (the 'perlocutionary' effect). Examples of speech-acts that have been much discussed in the literature on language acquisition include directives (the speaker tries to get the listener to do something, e.g. requesting, commanding), commissives (the speaker commits himself to a future course of action, e.g. promising), expressives (the speaker expresses his feelings, e.g. apologises, welcomes), and many more. As soon as we attempt a list such as this, though, the theoretical problem is immediately apparent: how do we know when a list is exhaustive? How do we distinguish one type of 'social force' from another (e.g. how clear is the difference between 'requesting', 'inviting', 'soliciting', 'begging', 'accosting'...)? How do we correlate these intangibles with the formal features of language? Faced with such a mass of imponderables, it is not surprising that the theoretical debate in this field is making slow progress.

In remedial settings, the theoretical problems are fortunately not as serious as they might be, because of the much more circumscribed nature of these

settings, and the much more limited types of speech-act normally encountered there. Even so, an inventory of types can become quite complicated, as the following attempt suggests (the list is restricted to P-directed stimuli, and excludes the utterances T uses to others, e.g. parents, kin, phone-callers). Only the main grammatical categories are used.

A. Minor sentences

organisation, e.g. rìght/, nòw/ (i.e. let's move on to something new)
vocative, e.g. Jòhnnny/, Mr Smith/ (many functions, depending on the intonation, such as attention-seeking, warning)
continuity, e.g. mh̀m/, yés/ (i.e. carry on, I'm listening)
formulae, e.g. 'up the réds/ (said by T as P came in wearing a football scarf)
exclamation, e.g. gòsh/, òoh/

B. Major sentences

Statements (i.e. statement in form, but not necessarily functioning as a statement of fact):

neutral, e.g. descriptive narrative about a picture, event, etc.
identification (following P's zero response), e.g. it's a càr/,
he's rùnnìng/
correction, (following P's wrong response) e.g. P it's a càr/
T it's a v`an/
checking (a repeat of P's utterance, but with a high rising tone),
e.g. it's a ↑càr/
supplementary information, e.g. T it's a v`an/
it's 'not got any wìndows/
commentary on action, e.g. we'll 'have to 'do that ag`ain/
prompt, e.g. it's f`a - (intonation being crucial here)
tag (used as question, though not a question in form), e.g.
he's 'e`ating his d`inner I suppose/
command, e.g. it 'goes thèrè/, I'm w`atching/

Questions (i.e. question in form but not necessarily in function):

general - wholly deictic, e.g. 'what's th`at/
using empty verb, e.g. 'what's th`at 'called/, 'what's he d`oing/
specific - lexical item provided, e.g. 'what's he e`ating/
forced alternative, e.g. is he e`ating or dr`inking/
clarification, e.g. 'more wh`at/
checking (incorporates P's utterance, or part of it), e.g. 'did you
'say r`ed/
rephrase by T, e.g. is he r`unning/
is the 'man r`unning/
rhetorical (no expectation of a response) e.g. you're t`ired/ `aren't you/
instruction, e.g. will 'you 'sit st`ill/

Commands

general, e.g. 'go ón/, l`ook/, d`on't/
specific, e.g. 'put the 'pig in the b`ox/, 'let's 'find a c`ow/, 'say bl`ue/

Exclamatory

general, e.g. h`ow cl`ever/
specific, e.g. 'what a 'big c`ar/

The differential effect the selection of one rather than another of these stimuli may have on P's response ability is much in need of study.

A classification of T's reaction patterns would also be an important feature of any interaction profile, and an initial attempt at this has been made in Crystal (1979) (7). Several of the categories referred to above may of course turn up as reactions as well as stimuli (e.g. checking). A particularly important factor here seems to be the extent T provides P with formal guidance in his responses as to how P should proceed. At one extreme, T may provide no formal guidance at all, but simply a general positive or negative reinforcement (e.g. yès/, 'good bòy/, 'it's nòt/). At the other extreme he may provide P with an explicit correction, consciously drawing P's attention to the existence of an error (e.g. 'say it lóuder/, 'finish it òff/). In between, there are several reaction strategies that can be used, some of which have been noted as being of importance in language acquisition, e.g. the parental techniques of structural expansion and semantic amplification:

P 'there càr/
 T 'there's a càr/ (structural expansion)
 your dàddy's 'got a 'car like thát/ (amplification)

Lastly, we would need to provide a categorisation of P's responses, not this time in terms of the phonological, grammatical or semantic acceptability of his sentences, as formally constructed entities, but in terms of their appropriateness to the ongoing situation. It is this range of possibilities which introduces the idea of interactional disability, referred to above. Several types of problem have been noted in the clinical literature. In addition to the patients whose language output falls below what is socially normal (the majority of language-disordered, by definition), there are also groups of patients whose language output rises to well above what is socially acceptable. Meaning may be present (e.g. in the outpourings of some schizophrenic patients), or it may be largely absent (as in 'fluent' dysphasic speech, or the 'cocktail party' speech of hydrocephalic children). A third possibility is that language may be normal in quantity, but moving 'in parallel' with T, and not genuinely interacting with his utterances. A good example is the language habits of the child of 3;3 analysed by Blank, Gessner and Esposito (1979), from which the following extract is taken: (8)

Father

John

That's Pat's house. What's everyone doing at Pat's house?

Knock, knock, knock.
 (Knocking on door in book)

Come in!

Nobody's home.

Nobody's home? Well, isn't Pat home? (Pat is evident in the picture)

Come back later.

O.K., let's go to Pat's new house.

Pat's old house.
 (Looking at book)

The general feel of conversations such as this is of the adult doing a great deal of work to no effect. The child's utterances sometimes make contact with lexicon from the adult, but not in any coherent manner, and without any willingness to move the conversation in a given direction. It is as if a basic felicity condition has been broken: the adult is interested in having a conversation about a topic, but the child is not - though he nonetheless produces a great deal of speech, and if the adult withdraws from the exchange, he immediately becomes upset. Similar patterns have been observed in the language of young schizophrenic and autistic children, and they are probably

common in adult psychopathological conditions also, though the point has been little investigated.

It is my hope that clinical sociolinguistics will develop as a major field of interdisciplinary enquiry - though whether it will be called this, as opposed to 'clinical pragmatics', 'clinical discourse analysis', or several other possible titles, remains to be seen!

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* This paper brings together the main points made in my lectures to the conference, though there has been some reorganisation of their content to meet the demands of publication. I regret that it has not been possible to incorporate the material from the workshop sessions on grammar and prosody.

- (1) This argument is developed in Chapter 1 of my Clinical linguistics (Vienna and New York: Springer, 1981). In its various chapters, this book provides a fuller illustration of the several themes I addressed at the conference.
- (2) For a discussion of the relationship between medical and behavioural models, see my Introduction to language pathology (London: Edward Arnold, 1980., Ch. 2).
- (3) A more detailed account of the prosody profile chart, along with illustrations of its use, is given in my Profiling linguistic disability (London: Edward Arnold, 1981).
- (4) A more detailed discussion of the LARSP procedure and its application is to be found in Working with LARSP (London: Edward Arnold, 1979).
- (5) For a fuller account of semantic disability and the techniques involved in its study, see Ch. 5 of Clinical linguistics (op. cit).
- (6) L. Bloom and M. Lahey, Language development and language disorders. (New York: Wiley)
- (7) See Working with LARSP (op.cit), p55, ff.
- (8) Blank, M., Gessner, M. & Esposito, A. (1979), Language without communication: a case study. Journal of Child Language, 6, 329-52.