

Las Torres, Allan and Paul Westerman (eds), 1981.
New Linguistics by ... in ...
... ..

A NEW LOOK AT INTONATION SYNTAX AND SEMANTICS

Dafydd Gibbon

1. Aims of this study

'Germans (Americans, the English ...) are X, they talk so Xly, too'; the attitudinal stereotypes expressed by the terms which X ranges over (*rude, coarse, affected* ...) are often of the kind which are intuitively associated with intonations and which are given as 'intonation meanings' in the manuals. It would not be at all surprising if intonation differences and their misinterpretations contributed to the formation of such general stereotypes.

Some intonation differences between even quite closely related languages commonly evoke 'folk linguistic' comment and are misinterpreted, quite apart from problems with unrelated languages (Coates, 1975). Salient examples from English and German are: (1) American use of high level tones as progredience indicators (in some dialects more similar to German in this than to British English); (2) British wide pitch range, high onsets (especially in female speech), and frequent glides; (3) pronounced rhythm and accentuation in German with fairly large and abrupt pitch steps up or down between accented and unaccented portions of locutions; (4) German use of double-level ('chanted') falling nuclei in more generalised stereotypic uses than British uses of similar contours, with American usage in between (Gibbon, 1976; Ladd, 1978a). Such differences in form and use of intonation are not basically attitudinal at all but relatively conventional and arbitrary. Nevertheless, widespread tendencies to interpret all kinds of subtle 'meanings' into intonation patterns do exist which can lead to unfortunate misinterpretations of the attitudes and intentions of speakers of other languages and even dialects. The reason for these tendencies probably lies in the fact that intonation does have a large 'natural', presumably universal, component in its meanings and this component may be over-generalised.

A major aim of the present study is to show how some judgments which purport to be attitudinal (e.g. 'with reservations', 'uncertain', 'contrastive') turn out on closer study to be mere cover terms for quite coherent dialogue structures. This aim may be thought of as part of the demythologisation

of the 'notional label' approach to describing intonation meaning, and a step towards providing an alternative structural model which has the advantage of wearing its own limitations on its sleeve, unlike the relatively intangible, language-specific notional descriptions. If such demythologisation can be made to influence folk linguistic attitudes via language teaching, so much the better.

Figure 1 outlines the main features of the model used here to explicate one aspect of intonation, i.e. sequences of pitch accents and their semantic interpretations. Nothing will be said about what is often thought of as 'intonation proper' (e.g. pitch height relations, slow pitch changes), nor will be role of extralinguistic settings be considered. Features of Figure 1 concerned with inputs or the control function will not receive attention either.

The following sections deal with selected aspects of the model outlined in Figure 1, and should be consulted for further elucidation. In § 2 some basic assumptions are discussed; § 3 treats some explicands or fundamental problem areas particularly with respect to the provision of autonomous syntaxes for intonation, and in § 4 these points are elucidated and solutions outlined in more detail, leading to the development of a relatively simple set of descriptive principles. In the following sections a similar approach to the solution of various problems of intonation semantics is proposed. In treating both syntax and semantics, the models proposed are confronted with specimens of complex speech data.

2. Some basic assumptions for intonation description

Intonation is the temporal organisation and use of the phonetic parameter known as 'phonation rate' in the articulatory domain, as 'fundamental frequency', 'f₀', in the acoustic domain, and as 'pitch' in the auditory domain. There is no simple relation between any one domain and the others (Lehiste, 1970), unfortunately for those who would like an easy way of 'measuring' intonation. The criteria used here will be auditory, though there are good reasons for supposing that the major correlates of intonation are articulatory, in the sub-glottal and glottal areas, and that these are secondarily modified by dynamic proprioceptive and auditory monitoring and regulation (e.g. the stylistic variation of greater and less isochronicity in rhythm, sustention of pitch levels as in various stereotyped styles and some intonational cohesion strategies, the slowing down and drawing out of some contours, or complex shapings of simple accentual contours as with fall-rises and rises, rise-falls and falls). Such considerations cannot be treated in detail here as they lead to somewhat unconventional

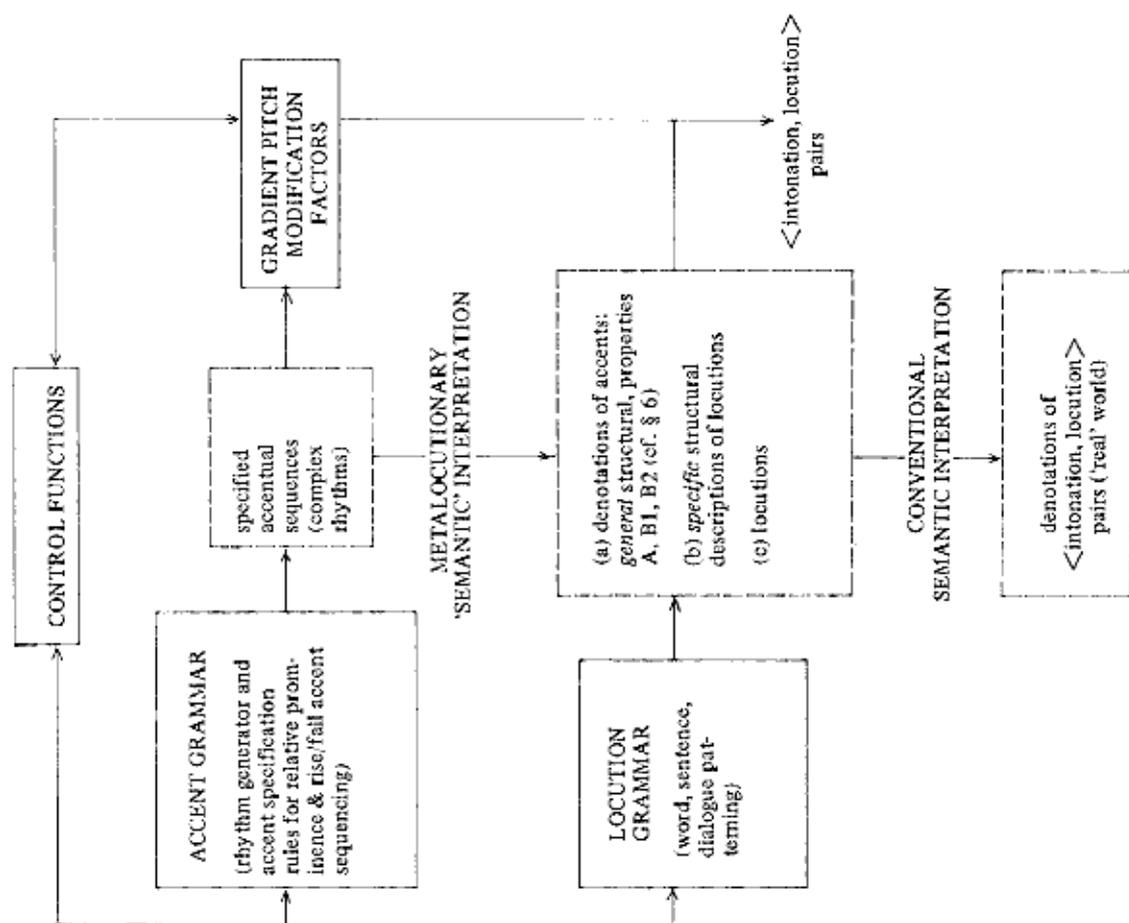


Figure 1: Model of autonomous syntax and semantics for intonation (for further elucidation of semantic aspects cf. § 7).

representations which would distract from the main aim of the study. It is sufficient for present purposes to point out that the central points of such a treatment involve (1) the treatment of accents as articulatory gestures or pulses, (n.b. neither 'levels' nor 'contours'); (2) treatment of many rises as having an underlying downward pulse (cf. Bolinger's Accent C) and of many falls as having underlying upward pulses; (3) treatment of complex tones such as fall-rises, rise-falls and some types of falls such as 'call contours' as pulse pairs. Treatment of some falling nuclei as having underlying upward accentual pulses explains a somewhat puzzling judgment frequently met with: naive speakers often classify accentually conspicuous final falls as rises. In this study, however, conventional tonetic notation is used.

Whatever the notation, it is important to pay close attention to phonetic and phonological details, if only to avoid two common fallacies in intonation description: the *notional fallacy* (of describing a form by its function, e.g. 'emphatic intonation', 'contrastive intonation', 'question intonation', and simply assuming the possibility of an exact description of form), which was abolished half a century ago in other areas of language study; and a variant of this, the *correspondence fallacy* (cf. Bazell, 1952), in which intonation forms and patterns are assumed to correspond to forms identified at other linguistic levels (e.g. 'sentence intonation', 'comma intonation', 'declarative intonation'). A mixture of both is the common assumption that intonations manifest illocutionary forces, argued against by Gibbon (1975: § 4.3.) and Marek (1975). Forms may correlate with notions or other forms, but this must be shown, not assumed.

One reason for stressing the importance of phonetic facts is that system-building of the kind practised in this study often leads to neglect of such matters; it is important to check models against complex data and use them as tools in formulating further sensible questions even when they are thereby shown to be false and have to be modified or discarded.

Another reason lies in the double *naturalness* of much of intonation, which in practice encourages fallacious thinking: (1) naturalness of *form* (i.e. close correspondence between phonetic feature trajectories and more abstract 'intonations' — contrast the 'arbitrary' relation, for example, between the past tense or any other morpheme and its phonetic realisations); (2) naturalness of *function* as signs (i.e. as causal indices or symptoms, as with the tension and pitch height relation, or as indices of contiguity, as with accents and the locutionary constituents they focus in quasi-deictic fashion, or as icons which reflect similarities between locutionary structures by means of intonation patterns). The last types of functional naturalness were referred to by the Prague school as the 'configurative', 'culminative', 'integrative' and, secondarily, 'delimitative' functions of intonation (Trubetzkoy, 1939; Jakobson & Halle, 1956; Daneš, 1960). These functions will be

explicated in § 6 below. Both kinds of naturalness, formal and functional, stem from (3) *lack of duality, or double articulation*, in intonation signs. Double articulation is the view that the fundamental organisation of language, morphemes and their interrelations, is secondarily 'encoded' into the different structural level of phonemes and their interrelations; the view is closely associated with Hockett and Martinet, though it is already implicit in Jakobson's semiotic analysis of the phoneme (e.g. 1939). For a related semiotic approach to intonation cf. Esser (1975); a more detailed account of the various functional approaches to intonation is to be found elsewhere (Gibbon, 1975: esp. § 1.2.4.).

3. Central aspects of intonation syntax

In developing an explicit autonomous syntax for intonation, two central questions must be answered at the start: (1) What categories are to be used as the terminal elements of the description? (2) What kinds of model are suitable for formulating the relations between these categories?

With regard to question (1), the basic items will be taken to be pitch accents, of which two major types, rise and fall, will be recognised. Boundaries, with which traditional descriptions are richly equipped, will be treated as 'context-sensitive nothings', i.e. as secondarily reconstructed categories, both in theory and in actual perception (cf. Dechert & Raupach, 1980) and ignored for present purposes; actual auditory pauses may often fit in with accentual patterning, but they appear to belong to a different system of planning and restructuring, and only correlate indirectly with conventional syntactic or phonological boundaries. Actual auditory pause is to be distinguished from judgments of 'potential pause', common since Pike (1945), which are judgments about various kinds of abstract constituent structure, not phonetic judgments.

Taking accents, which Bolinger and others have shown to be discretely structured variables, as primary descriptive categories has several theoretical advantages. (1) Such discrete categories are appropriately interpreted as the kind of articulatory pulse which was claimed in § 2 to be a correlate of accent, each being discrete. (2) There is no theoretical-problem involved in principle in formulating appropriate syntaxes for inter-accent relations if they are discrete. (3) Similarly, there is no serious problem involved in relating accents to the equally discretely structured locutionary sequences. (4) If, as Bolinger suggests, there are discrete types of accent, there is no problem in formulating such distinctions either. (5) The traditional idea that discrete contrasts are more fundamental to language than continuous or gradient contrasts can be explicated for intonation by regarding gradient

features as secondary shapings of pulses and of pulse sequences (cf. § 2 and the outline of (4.6.) below).

In answer to question (2) at the beginning of this section, it is necessary to formulate the explicands of the description, i.e. the problems to be accounted for by appropriate models. The main areas of interest here are listed under the following seven points.

- (1) Accents occur in sequences which may be recognised independently of the particular locutions with which they are paired (autonomy thesis); such sequences may be conceived as rhythms.
- (2) These sequences are temporally ordered (temporal reality thesis).
- (3) Accent sequences resemble the locutions with which they are paired in that no maximal length can be given for them (recursivity thesis).
- (4) Certain constituents of a sequence, such as head, body and nucleus, have a special functional status within the sequence (syntactic function thesis).
- (5) The accents in a sequence may differ in type (rises, falls, etc.), or in relative prominence (accentual specification thesis).
- (6) There is a tendency for accents to occur in binary relations and within hierarchies of such relations (binary syntactic hierarchy thesis).
- (7) There are regular relations between accents in sequence and locutions at various sentential and dialogue levels (semantic hierarchy thesis).

This is not the place to provide detailed explications for each of these seven points; for practical purposes the informal outline in the following sections will be sufficient. The approach to explication is based initially on the 'clear case' method: simple descriptions are provided for a variety of clear cases and are subsequently confronted with complex data in an attempt to show their limits and, ultimately, to extend these limits gradually by simple extensions to the basic model. It is possible to show, for instance, that many important aspects of accentual systems can be modelled initially by means of quite simple finite state grammars which are quite inadequate for locutionary syntax (cf. Chomsky, 1957: Ch. 3). The simplicity of such models in comparison with most locutionary syntaxes is not a mark of triviality: it explicates the idea that in their most fundamental aspects accent and intonation systems are indeed simple. They are so simple — and thus presumably fundamental — that they are learned before locutionary patterning by young children, and they are subsequently taken so much for granted that they form the basis for naive over-generalisations of the kinds discussed at the beginning of § 1 above; these over-generalisations are often extended to cover foreign languages even by otherwise highly fluent non-native speakers of these languages, both in their own judgment and in their own performance. Any legitimate inter-language generalisations which the present study allows will be restricted in the first instance to the

West Germanic group, but are perhaps extendable to other so-called 'stress-timed' languages as well. The generality of the present approach with respect to other languages remains to be shown; over-hasty generalisations of such descriptions to other languages should be avoided as assiduously as the over-generalisations described above.

One important further point should be borne in mind: simplicity of structure in the unmarked, clear cases does not imply simplicity of function or vice versa. In acquisition of language, the simple prosodic structures are acquired long before they are employed in complex functions together with locutions; however, in combination with other factors — e.g. as a relation <intonation, locution, context> — simple structures may reach the high degree of functional sophistication found in rhetorical or other stylistically marked uses of the 'tone of voice'.

4. Toward an explicit intonation syntax

The seven important properties of prosodic systems listed above may be characterised in the following ways as a first step in providing an explicit model; the level of characterisation will be kept fairly informal here.

The first thesis, that of the autonomy of intonation systems, is needed in order to avoid the circularity of argumentation which often befalls discussions of intonation and its functions, in particular with respect to the correspondence fallacy noted above (§ 2). What is meant here is autonomy of syntax; prosodic structures are initially treated as if they were structurally quite independent of locutionary structures. There are, of course, close relations between prosodic and locutionary structures, but these are best described indirectly via the functions of intonations and locutions rather than as direct structural correspondences between the various formal factors in intonation patterns and locutionary structures. From a more general methodological standpoint, too, this approach may be justified: it is a sound principle that until similarity can be shown, dissimilarity should be assumed. The autonomous prosodic syntax of which some of the major aspects will be presented here will consequently be free of references to locutionary categories such as S, NP, N, or to locutionary functions such as *subject*, *agent*. See also Jassem & Gibbon (in press).

The second explicand, the temporal reality thesis, may be approximated by using right-branching syntaxes such as finite state grammars and their various modifications; these then require suitable realistic interpretations in terms of temporal ordering. The left-to-right (or, more accurately, before-and-after) ordering principle seems not only to be valid in psycholinguistic interpretations of linguistic models, but also holds with regard to linguistic

structures themselves, both in other areas of phonology (e.g. syllable structure — cf. Kaye & Lowenstamm, 1979) and in locutionary syntax (e.g. in the relations between constituent order and inflexional marking — cf. Gardner, in press).

The third point, *recursivity*, is dealt with only derivatively in classical generative phonology: accentuations are derived from recursively generated sentence structures. In other approaches, such as that of Halliday, it is roughly indicated but not within an explicit or even detailed account of the structure of intonation.

The necessity for the recursivity thesis is easily illustrated using 'tonetic' notation for one possible type of pattern (among many):

- (4.1.) i. [']
 ii. [' ']
 iii. [' ' ']
 iv. [' ' ' '] etc.

As the variety of possible locutions for a given pattern shows, this property of tone groups is not to be identified with any specific structural aspect of locutionary syntax:

- (4.2.) i. 'jump, you fool
 ii. 'Martin's gone
 iii. and a 'very good 'thing it 'was
 iv. 'yesterday they 'all 'walked to 'Penge (etc.)

This is in fact the principle behind the 'forechaining' and 'backchaining' exercises on intonation in some FLT textbooks; the difference between them and the example given above lies solely in the choice of related locutions in the exercises in order to keep the number of variables in the exercise to a minimum:

- (4.3.) Backchaining:
 i. 'there
 ii. 'look over 'there
 iii. 'take a 'look over 'there
 iv. 'lets 'take a 'look over 'there (etc.)

- (4.4.) Forechaining:
 i. 'sometimes
 ii. 'sometimes it 'rains
 iii. 'sometimes it 'rains for 'hours
 iv. 'sometimes it 'rains for 'hours on 'end (etc.)

The intonation patterns are identical in structure whether backchaining or forechaining is used.

The underlying recursive principle is easy to define: (a) ['] is (minimally) a tone group; (b) if ['] is put in front of any tone group, we have another tone group. If we symbolise ['] as 'a' and ['] as 'b', and the whole group as 'G', then the familiar rewriting notation can be used to formulate this principle as a simple finite state (Type 3) grammar:

- (4.5.) i. $G \rightarrow bG$
 ii. $G \rightarrow a$

As for the fourth point on the list, the syntactic relations used in intonation descriptions may be given simple but exact structural definitions on this basis: the 'head' of a tone group (in Kingdon's sense; Crystal uses 'onset') is the tone introduced by the first rule application in a derivation; the 'nucleus' is the tone introduced by the last application. Of course, if rule (4.5.) ii. is applied first it is also applied last and the tone it introduces is therefore both head and nucleus, being the only tone. There is no way to represent this simple but obvious generalisation in the traditional notations; there are suggestions in work on pitch height, however (esp. Crystal, 1971; Brazil, 1975, 1978), which may perhaps be interpreted as supporting the present suggestion: the significant pitch height of the whole tone group seems to be 'anchored' at the first accentual position, at least for the less spontaneous styles of speech and perhaps (other things being equal) for more colloquial styles too.

It is also obvious that the 'body' (the 'head' of O'Connor & Arnold or Crystal) may be defined in an extremely simple fashion as any sequence generated by rule (4.5.) i. This definition makes it quite clear that the body of the tone group is where the recursive properties of tone groups are to be found, as the recursive rule in the system is rule (4.5.) i.

The accentual specification thesis, the fifth on the list, has already received some attention at the beginning of § 3; it is a 'lower level' descriptive problem and may be understood within the context of a more comprehensive 'intonation grammar' with the sub-components of (4.6.):

(4.6.) Levels in an 'intonation grammar':

- i. Accentual structuring
- ii. Pitch height structuring
- iii. Accentual shaping
 (partly via auditory and other control)
- iv. Shaping of longer stretches
 (also partly via auditory and other control)

It was noted in § 3 that the individual accents (at the highest level in (4.6.)) may be thought of as values of an accentual variable [α accent] where ' α ' ranges over accentual pulse types, here represented simply as the traditional rise, fall, etc. tones. When they enter into syntagmatic relations, these

values occur as pairs related by the relative prominence relation as well as having the more specific properties associated with rises, falls and complex tones (i.e. clusters of accent pulses as sketched in § 2). The relative prominence relation is a complex function of a set of phonetic feature scales; it may sometimes be identifiable on the basis of one of these features, but in general all of them, together with non-prosodic phonetic information, play a part. The common property of these feature scales is that they are all structured in terms of similar ordering relations:

- (4.7.) i. [rhythmic accent] \ll p [pitch accent]
 ii. [negative pulse] \ll p [positive pulse]
 iii. [simple pitch function] \ll p [complex pitch function]
 iv. [non-laxing pitch function] \ll p [laxing pitch function]
 v. [controlled pitch function] \ll p [natural pitch function]
 vi. [low pitch] \ll p [high pitch]
 vii. [narrow-band pitch deviation] \ll p [broad-band pitch deviation]

The body-nucleus relation (in particular the head-nucleus relation as the limiting case) may be interpreted in phonetic terms as this generalised ' $\alpha \ll p \beta$ ' relation, where ' \ll ' is simply shorthand for 'is less prominent than'. Relational notations have been discussed by Bierwisch (1966), Gibbon (1975), Liberman (1975) and Crompton (1978). Liberman (cf. also Liberman & Prince, 1977) uses a notation of $\underset{s}{\ll}$ (trong) - $\underset{w}{\ll}$ (eak) pairs as direct interpretations of sister relations in phrase structures; this is equivalent to the cyclical interpretation principle in generative phonology. Such relations are regarded within the present approach as belonging to intonation semantics. The main reason for preferring tonetic symbolisation here rather than a more explicitly relational notation is its familiarity, which makes it less of a distraction from the main, perhaps even less familiar points in this study; the rise vs. fall contrast is of course, also one of the major contrasts in intonation.

The remaining two explicands, the syntactic and semantic hierarchy theses, will be covered in §§ 5 and 6 respectively. For these more complex problems, the autonomy thesis and the clear case method will need to be supplemented by an additional notion, that of system congruence, in order to provide a description which is both general and detailed. If different levels and systems in a language system are initially treated as autonomous with respect to the structure of other levels and systems, this is because the danger of slipping into the correspondence fallacy must be avoided. At some stage, the next heuristic step will be to look for possible interrelations between the independently identified levels. The 'ideal' interrelation would be correspondence, i.e. a structural similarity between levels which would allow the more restricted level to be derived from or reduced to some aspect of structure at the structurally more complex level; in effect, this

assumption is made in classical generative phonology. The facts are certainly not so ideal; there are 'marked' relations or incongruences between systems which may be observed as apparent counterexamples to the 'clear cases' and which are functional, requiring description within a broader and more complex framework than that required by the congruent or unmarked relations. There are, however, broad tendencies toward the unmarked 'ideal', particularly in formal styles of speech. The tendencies occur in many areas, as, for example, when accent specifications in a given sequence or hierarchy tend to have the same basic phonetic properties (the limiting cases being all-falling, all-rising, etc.); this has been noted by many writers and may be thought of as a kind of 'pitch harmony'. It is illustrated by the rises in the German data of § 5. The notion of system congruence is discussed in more detail elsewhere (Gibbon, 1975: § 4.2.2.).

Another case of the tendency toward system congruence is the co-occurrence of 'final' intonations with 'final' elements at various levels of locutionary analysis (the notion of 'final' having been defined independently for each level in order to avoid circularity): this is a fundamental feature of intonation semantics which will be taken up in § 6; at least in a large number of clear cases in formal styles, the nucleus denotes the last lexically filled constituent of locutions, while rises denote 'progradient' or incomplete locutions and falls denote 'terminal' or complete locutions. This kind of claim is part of the received 'folk-lore' of intonation description and there is a great deal to it. However, the situation is not quite so simple: as soon as more complex contexts and more complex data are taken into account, the system congruence claim appears to fail, since rises occur at the ends of locutions, nuclei occur at the beginning or in the middle of locutions, and so on. The point to be made here is that this is where the simple clear case model begins to break down and additional explanatory principles must be invoked. In particular, there are far greater complexities in locutionary structure than in the associated intonational patterning and therefore there can be no simple function relating intonation patterning with any given locutionary level; this leads to the possibility that where an apparent incongruence exists between intonation patterning and one level of locutionary analysis, as in the cases just noted, there may be a higher level of analysis, for instance within higher level dialogue structures, where the incongruence is in fact resolved. This would be the case, for example, with questions or requests and the like, which are associated with initial moves in dialogue exchanges; the association of rises with many occurrences of such speech acts may thus be explained structurally, with the rises functioning simultaneously at two hierarchically related levels: finality-marking at the lower level, incompleteness-marking at the higher level, each function being identified with reference to a different level of the ' \ll ' relation. Similar points will be made repeatedly in the following sections.

First, the low prominence rise 'tagged on' to the final fall of the third section. Rise tags like this are common in German and English at the end of dialogue contributions. The accentual structure is clearly not congruent with locutionary syntax at this point and it cannot be said that the final section of the contribution is marked by a more prominent final accent. The incongruence may be resolved in the following way, in a purely structural manner. The final rise 'tag' is less prominent than the preceding fall and does not detract from the normal or unmarked function of this accent as a finality marker at the lower level. The tag introduces a relatively unobtrusive secondary element of incongruence, apparently functioning as an operator which marks sequence 4 as a non-final item in a higher level context, in this case the whole dialogue exchange (cf. Fig. 2). The low-level incongruence is resolved and the rise tag is seen to function as a kind of binary intonational conjunction inviting a speaker change, which is, in fact, what then occurred. In a similar way, the transpositions or discourse 'transformations' noted for English at the end of § 4 may be seen as special cases of this more general principle:

(5.4.) Subordinate items at a given level may occur finally as markers of subordination of the whole unit at a higher level.

A more detailed account of this principle would require extensive treatment of the subject of topicalisation and the semantics of accentuation, which cannot be given here.

Second, the post-nuclear rises after rise nuclei (and some cases of pre-nuclear rises). Unlike the previous cases these can only be fully explained by reference to their semantics; it would of course be unsatisfactory simply to leave them as syntactic 'exceptions' or as members of some hitherto unexplained 'other system'. Consideration of their semantic interpretations in these contexts reveals that they are superimposed accents marking words which are either lexically or contextually marked as evaluative/appraisive. They do indeed belong to an 'other system', but one which is easily specified. The evaluative accent assignments appear to be (a) independent of the other accentual levels to a large extent and (b) aligned along a 'fuzzy' or continuously variable accentuation feature. These properties seem to be required in view of the similar interpretations for the 'over-prominent' [ɪ] accents in sequence 4 (cf. sequences 16, 17) and the post-rise rises in sequence 8. It may turn out to be possible to generalise this basic emphatic function thus: since non-finality is categorially associated with rises in the varieties under consideration the post-rise rises are in a sense redundant and may be thought of as emphasising non-finality by iteration. A simple and general interpretation for other cases is that less prominent post-nuclear accents of the same accentual type (post-rise rises, post-fall falls) are purely rhythmical at the lowest level of accentuation and have no specific con-

gruence or incongruence marking function with respect to locutionary structures (cf. Jassem & Gibbon, to appear).

In summary, the following levels of accentual sequence structure have been identified using complex German data; they are mnemonically labelled by their functions in this particular corpus, though only the second category was identified with the aid of semantic criteria (example numbers in brackets):

- (1) dialogue structure indicators (5);
- (2) *ad hoc* evaluativity indicators (as 'fuzzy' amplifications of pitch congruent post-nuclear accents, 8, 16, 17; also perhaps the pre-nuclear rises in 6);
- (3) propositional structures within a dialogue contribution (sequences of [ɪⁿ f], 2, 3, 4);
- (4) clausal structures within dialogue contributions (here sequences of [ɪⁿ I] or [ɪⁿ f], 6, 11, 12, 13, 14, 22);
- (5) a lowest level of purely rhythmical accents (not discussed in detail here; cf. 8, 10, 14, perhaps 16, 17).

It should not be assumed that accents actually indicate dialogue structure *per se* or evaluativity *per se*, or the other two structural levels. This is what they happen to indicate here. A generalisation will be attempted in the following section, where it will be suggested that at all these levels accents indicate basically the same properties, and that the differences are attributable primarily to the locutions and the discursive or situational context rather than to the accents. The hierarchy of levels in terms of relative prominence and accent shape may not be discretely fixed at all; like the fundamental prominence relation itself it may be intrinsically 'fuzzy' or 'vague' in the technical sense and thus lend itself to the spontaneous construction of *ad hoc* hierarchies in discourse, particularly in the more formal styles of polished rhetoric. If this is the case, a further explicand, but on a different, methodological level, might be added to the list in § 3: the apparent indeterminacy of accentual prominence and hierarchies as reflected in discrepancies in phonetic judgments made by different observers. The evidence of this section thus seems to point away from the quite rigidly structured tone groups of the classical analyses and toward a more flexible notion of tone or pitch accent sequences at a (possibly indeterminate) number of hierarchical levels, none of which is rigidly linked to particular levels of locutionary organisation.

6. Toward a semantic representation: the metalocutionary hypothesis

Once an independent characterisation of the syntax of intonation patterning has been developed it is easier to investigate the notion of intonation meaning. There have been many approaches to this question; most of these pertain to some feature of 'speaker attitude', one aspect of which has been seen in recent years as 'illocutionary force' (Yorio, 1973; Ballmer, 1978; Bolinger, 1978). The illocutionary force hypothesis has never been argued in detail, however, but simply assumed, yielding instances of the fallacies noted in § 2 above. Counter-evidence to the hypothesis has been provided in a number of places (Gibbon, 1975: § 4.3.; Marek, 1975; Gibbon, 1976); intonations may perhaps be seen as signalling components of illocutions, when this notion is examined closely, but very general components which are simultaneously components of other aspects of meaning and speech structure too.

A more stringent hypothesis, traceable to views of the early Prague school, will be developed here and used in the same kind of explicit descriptive strategy as was applied to syntax above. It is referred to in earlier studies (Gibbon, 1975, 1976, 1979) as the 'metalocutionary' function of intonation; the quasi-metalinguistic position of intonation in an overall intonation model was shown in Figure 1. An early formulation of the thesis is given in Jakobson's serifotic analysis (1939 (1962:288)):

Der Satz ist eine Sinneseinheit, die dem Wort übergeordnet ist, und jedes laufende Mittel, welches ihre Abgrenzung, Einteilung oder die Hierarchie ihrer Bestandteile anzeigt, ist gleichfalls ein autonomes Zeichen.

The metalocutionary hypothesis contrasts sharply with the conventional structural view that intonations are syntactically related to morpheme strings; the present approach takes the relation to be semantic, in a precisely definable way. It is perhaps only a slight distortion to say that classical generative phonology may be seen as an extreme version of this view: 'stress patterns' represent locutionary phrase structures quite directly, though often with little regard for descriptive or observational reality or the fallacies mentioned above. In the present approach, this kind of rigid inter-level relation is rejected.

A somewhat artificial distinction is sometimes made in semantics between logical semantics, which is centrally concerned with extensional meaning (reference and truth) and its associated puzzles, and linguistic semantics, which is centrally concerned with 'semantic relations' between words, either in paradigms (particularly the relations of synonymy, hyponymy, antonymy) or within sentential contexts (so-called 'role' or 'thematic' relations), and uses techniques such as paraphrase, collocational classification and compo-

mentalisation to this end. The second case appears, when scrutinised closely, as a somewhat restricted special case of the first, in which judgments on collocability or on components are made at the sentential level in the absence of a further context of use. In practice, however, such judgments are not entirely context-free, since even the 'opaque contexts' of linguistic example citation are extensionally 'leaky' (if only because the linguist making the judgment is not entirely without imagination); further, it is not possible to deal with the semantics of quantifiers, tense, modalities, propositional attitudes, to name but a few central areas, without taking extensional models and contexts into account.

The traditional approach to intonational meaning is a special case of the semantic component or paraphrastic approach. Components labelled as *emotional*, *intellectual*, *progreddient*, *reserved*, *important*, etc., have been used; they were referred to in § 1. Use of the paraphrastic approach here begs one essential question, however: whether intonational and locutionary meanings are comparable at all.

The present approach is a form of extension-oriented semantics; the denotations or referents of sequences in the 'language' of accent sequences, for instance, are certain properties of locutions. The approach provides explanations for the configurational (culminative, integrative, delimitative) prosodic functions of the Prague school (Trubetzkoy, 1939; Jakobson & Halle, 1956; Daneš, 1960). Three kinds of metalocutionary denotation will be described here, and labelled 'A', 'B1' and 'B2'. Other types will not be dealt with.

(1) Function A (position). Pitch accents denote positions in locutionary structures. They do this ambiguously, since given positions can be occupied by whole hierarchies of constituents (Chomsky, 1971). They have a quasi-deictic function, being ostensive or attention-drawing, and occurring in spatio-temporal contiguity with their denotations (showing the relevance of the temporal reality thesis of § 3 for semantics as well as syntax). In this respect they resemble other kinds of gesture (cf. § 2) and, like these, they are *inter alia* associated with indexical locutions of the demonstrative type (*this*, *that*, *he*, in contrast to participant-defined indexicals like *I*, *you*, anaphoric uses of demonstratives, or purely anaphoric or expletive items like *it*). They have no fixed relation to specific words, word classes, or form classes at the various locutionary levels, however (contextually determined speech act idioms or stereotyped phrases may, conversely, have quite fixed relations with intonations; cf. *ich weiß nicht* in the § 5 data). Accents simply index positions of particular relevance *vis generis*, without specifying which positions or what levels are relevant. Specification of the denotations is the job of locutionary syntax and semantics. Function A is a step towards explicating the culminative function of the Prague school, or Lee's demonstrative function (1956).

Sequences of pitch accents were said by the Prague school to have, along with other aspects of intonation contours, other functions, in particular those of integration and delimitation. The delimitative function was briefly mentioned in § 2 above. The integrative function has two aspects, which will be labelled 'B1' and 'B2'.

(2) Function B1 (prominence). By virtue of the relative prominence relation between accents, sequences of accents may be said to denote very general types of focussing, foregrounding or dependency relations in locutionary sequences (cf. Ladd, 1978b; Esser, 1975): these relations hold with respect to the positions denoted by individual accents. Again, there is no specific connexion between the relative prominence relation and *particular* relations between locutionary constituents (e.g. subject-verb-object, modifier-head); to specify appropriate relations is the task of locutionary syntax. There are of course certain particularly important locutionary relations with which relative prominence relations may be associated, especially in semantically opaque citation contexts; these are the relations used in conventional generative phonology for stress assignment, this pairing being defined as 'normal intonation'. In view of the similarity of structure between the sign and its denotation, the signs are abstractly 'iconic'. A number of possible denotations for sequences constituted in terms of the relative prominence relation were listed at the end of § 5.

(3) Function B2 (closure). The accentual types rise and fall not only share the functions A and B1, but denote non-closure or closure of gestalt of locutionary units in dialogue. This explicates the traditional notion that rises are progredient, falls terminal in some sense. It was most clearly formulated in gestalt-psychological terms in the Prague school in the thirties and has been revived by several linguists at different times. In semiotic terms, this function may be interpreted as structurally iconic, relating gestalt closures at different levels.

These characterisations of the central metalocutionary functions are somewhat over-simplified and, as they stand, involve quite abstract denotations for accentual sequences which commit the approach to a quite strongly 'realist' view of the ontology of linguistic structures: if these general properties of locutions are to be denoted, they must somehow exist. A pointer toward a possible mode of existence may perhaps be found in cognitive psychology, for instance by conceiving of accent sequences as rhythms associated with synthesis in attentive processes (Neisser, 1967:262); in the auditory domain, the basis for the notion of gestalt is evident, and its articulatory basis may be related to tension-relaxation processes.

Figure 1 showed the general organisation of the present model; Figure 3 illustrates some details. The interpretation function itself involves a wide range of complex factors (cf. Gibbon, 1979, for an informal outline) and

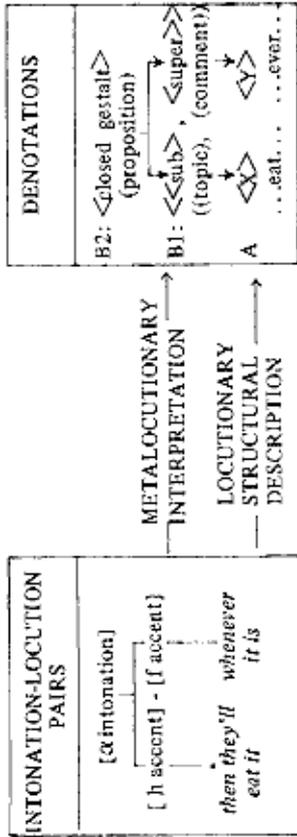


Figure 3: Example of metalocutionary interpretation of an accent sequence. Denotations of accents in sequence (general properties of locutionary sequences) are enclosed in angles, the specific properties of this particular locution in context (cf. Fig. 3) in parentheses. The weaker and stronger members of the relative prominence relation denote the items labelled 'sub' and 'super', respectively; 'h' stands for high non-kinetic head accent.

will not be dealt with here. An important relation between the three functions is indicated in Figure 3: the small arrows between the three levels of the semantic domain may be interpreted as implication signs. Sequences with function B2, closure, simultaneously have function B1, prominence; sequences with function B1 simultaneously have function A, position. The reverse, of course, does not hold. In this way, a unified way of treating the informal ideas introduced separately above may be developed: the B functions are semantically compositional or 'Fregean', i.e. their meaning is a function of the meanings of their parts.

None of the metalocutionary functions, it should be emphasised, involve particular locutionary denotations. Even old friends like the notional 'question intonation' turn out to have a general structural basis as markers of the end of the opening element of a dialogue pattern. The fact that questions occur with falls more often than not simply means that higher-level structures of this kind are left prosodically unmarked in such contexts, perhaps for reasons of conflict between social and dialogue roles (often informally expressed in terms of a 'politeness' or 'friendliness' associated with rises). Conversely, final rises are not accounted for by clear case syntax and semantics; they are therefore only given partial structural descriptions and partial interpretations as initial elements of higher-level structures, with the rise often (as at the end of the § 5 corpus) being interpreted as a tagged-on invitation for someone else to take a turn (and standing in a relation of functional similarity to locutionary tag particles and structures such as *gel' nich', ne, wa, isn't it*, etc., whose positions it regularly denotes in such contexts).

In their metaclocutionary functions, accents in sequence are thus something like the brackets and other punctuation marks of written modes of language use, from the most informal letter or diary to the most formal calculus; similar functions are shared by the capitalisation relation (as when one abbreviates 'Adam is bald' in predicate calculus notation to 'Ba') or by the italicisation relation when used as a correlate of accentual prominence. The existence of a functional similarity between intonation and punctuation is well known, of course, as is the relation between both of these and the structural descriptions of locutions. The relations within this triangle are very variable, however, though there may be fairly clear correspondences at particular points. In German, for instance, punctuation is more closely related to structural descriptions of locutions (as with comma marking of subordinate clauses), whereas in English the higher level discourse structures which are also closely connected with intonation patterning are more relevant (as with the preservation of the distinction between restrictive and non-restrictive relative clauses). An interesting attempt has been made to formulate a logical grammar based on λ -calculus, incorporating punctuation signs as structural descriptions (Ballmer, 1978); this syntactic model differs considerably from the present semantic model, however.

Within the present model, intonation patterns are thus not truth-functional constituents of locutions, as has sometimes been claimed in view of examples like (6.1) i., where ambiguous locutions may be intonationally disambiguated and receive opposite truth values:

- 6.1.) ii. He didn't do it because he was tired.
 ii. Because he was tired he didn't do it.

The two readings, one true and the other false in any given context, are not in any way intrinsic to the intonation patterns involved. The superficial impression of truth-functionality only occurs because negation is a truth-functional operation and in example (6.1) i. the accentuation pattern happens to mark the scope of this operator, two scopes being possible here. Similar considerations apply to ambiguities with other truth-functional operations such as conjunction. Written brackets may be used in formulae to disambiguate different possible parsings, and in truth-functional formulae they will also give the impression of being truth-functional. They are no more truth-functional than intonation, however, but are rather metasyntactic auxiliary symbols with metaclocutionary function. This solution to the problem posed by example (6.1) i. is supported by the non-ambiguity (except, as far as I know, in some comical dialect stereotypes) of example (6.1) iii., where locutionary syntax determines a unique, i.e. non-ambiguous scope for the negation operator no matter what intonation is used.

Signs with metaclocutionary function, like locutionary indexical signs, do not uniquely *identify* particular denotata, therefore. They simply *locate*.

and at most, in the B functions, *characterise*. Like locutionary indexical signs, too, they may identify when paired with a particular context or setting: locutionary signs have 'real world' settings, while metaclocutionary signs have 'actual locutions' as their settings. Many over-hasty generalisations about intonation meaning have resulted from ignoring its non-identificational character.

In the following section an informal illustration of some of the relations between accentual sequences and locutions, is given, tracing a particular level of semantic structuring as a cohesive principle in dialogue, not at the sentence or clause levels.

7. Complex semantic data from English: focus, contrast and cohesion

In the German corpus of § 5 it is evident that the essentially binary [r^n f] sequences correlate closely with general semantic strategies in argumentation: each of the three occurrences indexes a binary semantic sequence consisting of a description of a hypothetical situation, followed by a pejorative evaluation of the situation. This prosodic-semantic congruence establishes a form of textual cohesion.

A similar relation between semantic and accentual sequences can be found in English. Figure 4 provides an illustration of this with a sequence of semantically contrastive contexts in dialogue (from Crystal & Davy, 1975, Extract 11, lines 27-38). The example was retranscribed from the tape in a simplified notation; the published transcription is inaccurate (even allowing for the fact that transcribers do tend to differ systematically in their perception of pitch patterning) as comparison of the present transcription with the tape will show; the present transcription errs on the side of narrow-scope phonetic evidence (as opposed to broad-scope interpretations using relations between the ends of tone groups and the beginnings of following tone groups, e.g. in identifying fall-rises).

The structure of Figure 4 is not intended as a general scheme of analysis; it is a specific representation of some aspects of this particular dialogue exchange only, and no attempt is made to embed it in a locutionary semantic theory. It may be generalised in various ways, but this will not be shown here.

The semantic labels used represent what will be referred to here as 'topical structure'; they denote hypothetical events, *E*, paired with functional and temporal occasions, *O*, in sequences which are here termed propositions. *E* involves eating, first unspecified, then of Christmas cake, then of mince-pies, then of cake again. *O* is first Christmas tea, then brunch, then 'whenever'. The metacommunicative precludes, codas and back-channel items (here

fully explicit as a closed B2 type gestalt: some are incomplete, and these are regularly marked by rise or fall-rise accents and often labelled 'implicative', 'insinuating', etc. Any further connotations associated with *particular* instances of contrastive contexts are ascribable to the semantics of the locution involved, or to lower level gradient modifications. The following are suitable examples of one type of contrastive context, with closures added; such closures are, interestingly enough, often used in intonation handbooks to illustrate or justify the notional labels used.

- (7.2.) i. I 'wish I -could (but I 'can't)
 ii. We don't take just -anybody (only the `rich)
 iii. He did his `best (but it wasn't `good enough)
 iv. She's very `pretty (but not too `bright)

It is often claimed that there is a specific, possibly identifying, relation between fall-rise accents and contrastive contexts. A recent and quite sophisticated version of this view is held by Ladd (1978b:229) who claims (without falling into the notional fallacy, unlike other proponents of similar views): "The meaning of fall-rise is thus something like *focus within a given set*. It picks something out of a set of possibilities and focusses on it, but it specifically notes the connection of the set of possibilities to the context." This formulation is sufficiently explicit to allow equally explicit formulation of the numerous objections to the claim. (1) Other accents occur in these positions (see Figure 4 and (7.2)). (2) If the meaning 'focus within a given set' holds for fall-rises, it holds for all accents and in particular for the closures of contrastive contexts, which can also occur in isolation; when a midwife says "It's a girl" there is certainly focus within a 'given set', but a modern mother might be insulted to hear a fall-rise. (3) Taken individually, fall-rises basically just mark positions in function A, like other accents, and whether sets in one sense or another (cf. the hyponymy and co-hyponymy relations used above to define contrastive contexts) are involved is a specific property of *particular* locutions, not a *general* property denoted by accents (note the generality of function A in Bolinger's well-known example of a protesting child: "'No'-o-'o-'o'"). (4) Rising contours (including fall-rises) denote non-final positions in gestalts; this may be what Ladd means by "connection ... to the context". (5) Finally, fall-rises occur in contexts which are incomplete, but have nothing to do with a "given set":

- (7.3.) A: Have you heard about Jim?
 B: 'No ('tell me)

(Alternatively interpretable as an initial dialogue constituent.)

It would also be difficult to see how fall-rise accents on verbs, prepositions, conjunctions or interjections (e.g. *Yes Mum*) could mean "focus within a given set", whereas the structural closure interpretation is quite adequate. The "focus within a given set" interpretation, where justified, is contingent on the associated locution and not tied to the intonation.

8. Conclusion

After outlining some basic assumptions and a broad strategy of explication it was shown in § 5 that simple right-linear grammars can be used as productive heuristic tools in modelling accent paterings and in suggesting further strategies to analyse complex data for which these grammars appear to fail. In § 6 an approach to the semantics of intonation was suggested, the 'metalloccutionary hypothesis', and applied informally to complex English data in § 7, where it was shown that semantic topical structures are fairly close correlates of rise and fall accent sequences in these data, leading to the definition of the notion of contrastive context as a topical structure pair with constituents related by hyponymy or co-hyponymy. Using this notion, a case of the assignment of over-specialised meanings to intonation patterns was analysed.

Many areas have been left relatively untouched, in particular the exact structure of the metalloccutionary interpretation itself, the context-reconstruction function required for incomplete contexts, the areas often associated with 'intonation proper', and the exact nature of the phonetic specification of the relative prominence relation.

The main conclusion is that many areas of intonation often labelled with intangible attitudinal predicates can be seen to share structural regularities with other areas and to be amenable to modelling by simple, but exact means. For example, labels such as those given by Halliday (1970a:26 - "tone 4, expressing reservation, or contrast, or a personal opinion offered for consideration") may be clearly explicated in terms of the opening of a gestalt at some specifiable level of locutionary dialogue patterning. If a moral can be drawn for practical descriptive applications of this explication strategy it is probably this: before deciding on a simple notional predicate to describe 'the' meaning of intonations in isolation, look for simple and systematic dialogue structures and beware of isolated examples in the citation contexts of linguistics (this study not excepted) or in the stereotyped examples of textbooks which (on the lines of (7.2.) above) often turn out to be fairly fixed intonation-locution idioms or clichés. There is no substitute for using systematic modelling to support one's own critical listening to complex data, particularly when trying to demythologise the field of intonational meaning in order to make it accessible for practical applications.

Acknowledgments

Discussions and correspondence with many friends and colleagues, particularly Thomas Gardner, Gerry Knowles, Bob Ladd, Gisa Raub, Hannes Rieser, Rosemarie Tracy and the editors of this volume, have helped me to file down some of the rough edges of previous versions of the approach outlined in this study. The German data in § 5 were provided by my students Ingrid Hippe (unwittingly at the time), Elke Sattler and Margret Selting at the University of Bielefeld. The present study is a considerably modified version of a privately circulated paper entitled "Syntax and semantics for intonation", July 1979.

GENERAL BIBLIOGRAPHY

The following abbreviations are used:

<i>AVLJ</i>	Audio-Visual Language Journal
<i>CLS</i>	(Papers from the regional meetings of the) Chicago Linguistic Society
<i>CMLR</i>	Canadian Modern Language Review
C.U.P.	Cambridge University Press
<i>DNS</i>	Die Neueren Sprachen
<i>ELTJ</i>	English Language Teaching Journal
<i>FL</i>	Foundations of Linguistics
<i>FoL</i>	Folia Linguistica
Inst.	Institut(e)
<i>IRAL</i>	International Review of Applied Linguistics in Language Teaching
<i>ISB</i>	Interlanguage Studies Bulletin, Utrecht
<i>ITL</i>	Review of Applied Linguistics, Instituut voor Toegepaste Linguïstiek, Leuven, Belgium
IULC	Indiana University Linguistics Club
<i>JIPA</i>	Journal of the International Phonetic Association
<i>JL</i>	Journal of Linguistics
<i>JP</i>	Journal of Phonetics
<i>Lg</i>	Language
<i>LJ</i>	Linguistic Inquiry
<i>LL</i>	Language Learning
<i>LTLA</i>	Language Teaching and Linguistics: Abstracts
<i>L&D</i>	Linguistik und Didaktik
<i>MSLL</i>	Monograph Series on Language and Linguistics, Georgetown University N.Y.
O.U.P.	Oxford University Press
Repr.	Reprinted
<i>SLA</i>	Studies in Second Language Acquisition
<i>TESOL</i>	Teachers of English to Speakers of Other Languages
Uni(v).	University/Universit�t/Universit�
<i>WPB</i>	Working Papers on Bilingualism
<i>WPLL</i>	Working Papers in Language and Linguistics

- Abercrombie, D. (1949). "Teaching pronunciation". *ELTJ* 3. 113-122.
- Abercrombie, D. (1967). *Elements of general phonetics*. Edinburgh: Edinburgh Univ. Press.
- Adams, V. (1973). *An introduction to modern English word formation*. London: Longman.
- Aitken, A.J. (1962). "Vowel length in modern Scots". Edinburgh: Univ. of Edinburgh, Dept. of English Language.
- Alexander, L.G. (1967). *Practice and progress* (New Concept English: Bk 2). London: Longman.
- Alexander, L.G. (1979). "A functional/notional approach to course design". *AVLJ* 7. 109-113.
- Alexander, L.G., Allen, W.S., Close, R.A. & O'Neill, R.J. (1975). *English grammatical structure: a general syllabus for teachers*. London: Longman.
- Allen, J.P.B. (1974). "Pedagogic grammar". In Allen & Corder, 1974: 59-92.
- Allen, J.P.B. & Corder, S.P. (eds.). (1973). *The Edinburgh course in applied linguistics*, vol. 1. *Readings for applied linguistics*. London: O.U.P.
- Allen, J.P.B. & Corder, S.P. (eds.). (1974). *The Edinburgh course in applied linguistics*, vol. 3. *Techniques in applied linguistics*. London: O.U.P.
- Allen, J.P.B. & Corder, S.P. (eds.). (1975). *The Edinburgh course in applied linguistics*, vol. 2. *Papers in applied linguistics*. London: O.U.P.
- Allen, J.P.B. & Davies, A. (eds.). (1977). *The Edinburgh course in applied linguistics*, vol. 4. *Testing and experimental methods*. London: O.U.P.
- Allen, J.P.B. & Widdowson, H.G. (1975). "Grammar and language teaching". In Allen & Corder, 1975: 45-97.
- Allen, W.S. (1954). *Living English speech*. London: Longman.
- Allerton, D.J. (1978). "Generating indirect objects in English". *JL* 14. 21-34.
- Anderson, J.M. (1971). *The grammar of case: towards a localistic theory*. London: C.U.P.
- Anderson, J.M. (1977). *On case grammar: prolegomena to a theory of grammatical relations*. London: Croom Helm.
- Anderson, J.M. & Ewen, C.J. (MS). *Principles of dependency phonology*.
- Anderson, J.M. & Jones, C. (1974a). "Three theses concerning phonological representations". *JL* 10. 1-26.
- Anderson, J.M. & Jones, C. (eds.). (1974b). *Historical linguistics: proceedings of the first international conference on historical linguistics*, vol. II. Amsterdam: North-Holland.
- Anderson, J.M. & Jones, C. (1977). *Phonological structure and the history of English*. Amsterdam: North-Holland.
- Anderson, S.R. & Kiparsky, P. (eds.). (1973). *A Festschrift for Morris Halle*. N.Y.: Holt, Rinehart & Winston.
- Anthony, E.M. (1963). "Approach, method and technique". *ELTJ* 17. 63-67.
- Apostel, L. (1977). "The cognitive point of view: introduction to a discussion". In De Mey, M., Pinxten, R., Poriau, M. & Vandamme, F. (eds.), *International workshop on the cognitive view*. Ghent: Univ. of Ghent, ix-xv.
- Arnold, H. (1972). "Tendenzen der transformationellen Schulgrammatik in Deutschland". *L&D* 12. 247-265.
- Aronoff, M. (1976). *Word formation in generative grammar*. Cambridge, Mass.: MIT Press.

- Aronson Berman, R. (1978). "Contrastive analysis revisited: obligatory, systematic and incidental differences between languages". *ISB* 3. 2. 212-233.
- Ausubel, D.P. (1968). *Educational psychology: a cognitive view*. N.Y.: Holt, Rinehart & Winston.
- Bach, E. & Harms, R.T. (eds.). (1968). *Universals in linguistic theory*. N.Y.: Holt, Rinehart & Winston.
- Bailey, N., Madden, C. & Krashen, S.D. (1974). "Is there a 'natural sequence' in adult second language learning?" *LL* 24. 235-243.
- Baird, R. (1973). "Children's phonological rules: a failure to replicate". *LL* 23. 223-231.
- Baket, A. (1977). *Ship or sheep? Introducing English pronunciation*. Cambridge: C.U.P.
- Ballmer, T. (1978). *Logical grammars*. Amsterdam: North-Holland.
- Barth, F. (1975). *Ritual and knowledge among the Bakaman of New Guinea*. New Haven: Yale Univ. Press.
- Bauer, L. (1975). *Nominal compounds in Danish, English and French*. Unpublished PhD thesis, Univ. of Edinburgh.
- Bauer, L. (1977). "On teaching compound nouns". *Moderna Språk* 71. 325-336.
- Bauer, L. (1979). "On the need for pragmatics in the study of nominal compounding". *Journal of Pragmatics* 3. 45-50.
- Bausch, K.-R. (ed.). (1979). *Beiträge zur didaktischen Grammatik*. Königstein: Scriptor.
- Bausch, K.-R. & Kasper, G. (1979). "Der Zweitsprachenerwerb: Möglichkeiten und Grenzen der 'großen' Hypothesen". *Linguistische Berichte* 64. 3-35.
- Bazell, C.E. (1952). "The correspondence fallacy in structural linguistics". In *Studies by members of the English Dept., Istanbul Univ.* 3. 1-41.
- Beard, R. (1977). "On the extent and nature of irregularity in the lexicon". *Lingua* 42. 305-341.
- Bellamy-Solemon, M. (1972). "Stem endings and the acquisition of inflections". *LL* 22. 43-51.
- Bennett, D.C. (1975). *The spatial and temporal uses of prepositions in English*. London: Longman.
- Berko, J. (1958). "The child's learning of English morphology". *Word* 14. 150-177.
- Bierwisch, M. (1966). "Regeln für die Intonation deutscher Sätze". In *Studia Grammatica* 7. 99-201.
- Bölinger, D.L. (1978). "Intonation across languages". In Greenberg, 1978: 471-524.
- Bonheim, H. & Kreifelts, B. (1979). *Ein Universitätslehrgangstext für Neophilologen*. Abschlußbericht der Arbeitsgruppe Sprachtests (AS) an der Uni Köln zur Vorlage beim BMBW, Köln.
- Booij, G. (1977). *Dutch morphology: a study of word formation in generative grammar*. Lisse: de Ridder.
- Booij, G. (ed.). (1979). *Morfologie van het Nederlands*. Amsterdam: Huis aan de drie grachten.
- Boomer, D.S. (1965). "Hesitation and grammatical encoding". *Language and Speech* 8. 148-158.
- Boomer, D.S. & Laver, J.D.M. (1973). "Slips of the tongue". In Fromkin, V.A. (ed.), *Speech errors as linguistic evidence*. The Hague: Mouton, 129-131.
- Botha, R.P. (1968). *The function of the lexicon in transformational generative grammar*. The Hague: Mouton.

- Botha, R.P. (1971). *Methodological aspects of transformational generative phonology*. The Hague: Mouton.
- Brazil, D. (1975). *Discourse intonation*. Birmingham: English Language Research, Univ. of Birmingham.
- Brazil, D. (1978). *Discourse intonation II*. Birmingham: English Language Research, Univ. of Birmingham.
- Brazil, D., Coulthard, M. & Johns, C. (1980). *Discourse intonation and language teaching*. London: Longman.
- Brekke, H. & Kastovsky, D. (eds.) (1977). *Perspektiven der Wortbildungsforschung*. Bonn: Bouvier.
- Bresnan, J. (1978). "A realistic transformational grammar". In Halle, M., Bresnan, J. & Miller, G. (eds.), *Linguistic theory and psychological reality*. Cambridge, Mass.: MIT Press, 1-59.
- Brière, E.J. (1968). *A psycholinguistic study of phonological interference*. The Hague: Mouton.
- Brown, G. (1974). "Practical phonetics and phonology". In Allen & Corder, 1974: 24-58.
- Brown, G. (1975). "Phonological theory and language teaching". In Allen & Corder, 1975: 98-121.
- Brown, G. (1977). *Listening to spoken English*. London: Longman.
- Brown, R. (1973). *A first language: the early stages*. London: Allen & Unwin.
- Brown, T.G. (1971). "Pedagogical implications of a case grammar of French". *JRAL* 9, 229-244.
- Brumfit, C.J. (1978). Review of Wilkins (1976). *ELTJ* 33, 79-82.
- Brumfit, C.J. (1980). *Problems and principles in English teaching*. Oxford: Pergamon.
- Brumfit, C.J. & Johnson, K. (eds.) (1979). *The communicative approach to language teaching*. Oxford: O.U.P.
- Bruner, J. (1978). "The role of dialogue in language acquisition". In Sinclair, A., Jarvella, R.J. & Levelt, W.J.M. (eds.), *The child's conception of language*. Berlin: Springer, 241-256.
- Burt, M., Dulay, H. & Finocchiaro, M. (eds.) (1977). *Viewpoints on English as a second language*. N.Y.: Regents Publishing.
- Candlin, C.N. (1973). "The status of pedagogical grammar". In Corder, S.P. & Roulet, E. (eds.), *Theoretical linguistic models in applied linguistics*. Brussels: AIMAV, 55-64.
- Candlin, C.N. & Breen, M. (forthcoming). *The communicative curriculum in language teaching*. London: Longman.
- Carpay, J.A.M. (1974). *Onderwijs-leerpsychologie en leerang ontwikkeling in het moderne veende talenonderwijs*. Groningen: Tjeenk Willink.
- Carroll, J.B. (1968). "The psychology of language testing". In Davies, A. (ed.), *Language testing symposium*. London: O.U.P., 46-69.
- Cattford, J.C. (1977). *Fundamental problems in phonetics*. Edinburgh: Edinburgh Univ. Press.
- Chafe, W. (1970). *Meaning and the structure of language*. Chicago: Univ. of Chicago Press.
- Chomsky, N. (1957). *Syntactic structures*. The Hague: Mouton.
- Chomsky, N. (1967). "Remarks on nominalization". Mimeograph. In Jacobs, R.A. & Rosenbaum, P.S. (eds.), *Readings in English transformational grammar*. Waltham, Mass.: Ginn, 1970: 184-221.
- Chomsky, N. (1970). "Formal discussion of 'the development of grammar in child language' by Wiek Miller & Susan Ervin". In Lester, M. (ed.), *Readings in applied transformational grammar*. N.Y.: Holt, Rinehart & Winston, 41-50.
- Chomsky, N. (1971). "Deep structure, surface structure and semantic interpretation". In Steinberg, D. & Jakobovits, L. (eds.), *Semantics: an interdisciplinary reader in philosophy, linguistics and psychology*. London: C.U.P., 183-216.
- Chomsky, N. & Halle, M. (1968). *The sound pattern of English*. N.Y.: Harper & Row.
- Christophersen, P. (1960). "Towards a standard of international English". *ELTJ* 14, 127-138.
- Close, R.A. (1977a). *English as a foreign language* (2nd ed.). London: Allen & Unwin.
- Close, R.A. (1977b). "Banners and bandwagons". *ELTJ* 31, 175-183.
- Coates, J. (1975). "Attitudinal factors in Hungarian intonation". *Idegen nyelvek tantársz* 2, 52-56.
- Cook, W.A. (1973). "A set of postulates for case grammar analysis". *WPLL* 4, 35-49.
- Corder, S.P. (1973a). *Introducing applied linguistics*. Harmondsworth: Penguin.
- Corder, S.P. (1973b). "Linguistics and the language teaching syllabus". In Allen & Corder, 1973: 275-284.
- Corder, S.P. (1975). Survey article: "Error analysis, interlanguage, and second language acquisition". *LTLA* 8, 201-218.
- Corder, S.P. (1978a). "Language-learner language". In Richards, 1978b: 71-93.
- Corder, S.P. (1978b). "Pure and applied research in linguistics: is the difference merely one of motivation?" *SSLA* 1:2, 77-90.
- Coulthard, M. (1975). Survey article: "Discourse analysis in English: a short review of the literature". *LTLA* 8, 73-89.
- Coulthard, M. (1977). *An introduction to discourse analysis*. London: Longman.
- Cowie, A. (1978). "Vocabulary teaching in Dutch schools: a survey of some recently published materials". *Levende Talen* 335, 478-484.
- Crompton, A.S. (1978). "Phonological models for intonation". *Nottingham Linguistic Circular* 7:1, 1-27.
- Crothers, J. (1978). "Typology and universals of vowel systems". In Greenberg, 1978: 93-152.
- Crystal, D. (1971). "Relative and absolute in intonation analysis". *JIPA* 1, 17-28.
- Crystal, D. (1976). *Child language, learning, and linguistics*. London: Arnold.
- Crystal, D. & Davy, D. (1975). *Advanced conversational English*. London: Longman. (With accompanying tape-recorded corpus.)
- Currie, W.B. (1975). "European syllabuses in English as a foreign language". *JL*, 25, 339-354.
- Dakin, J. (1973). *The language laboratory and language learning*. London: Longman.
- Dale, P.S. (1972). *Language development: structure and function*. Hinsdale, Ill.: The Dryden Press.
- Danes, F. (1960). "Sentence intonation from a functional point of view". *Word* 16, 34-54.
- Danielson, D. & Hayden, B. (1973). *Using English, your second language*. Englewood Cliffs, N.J.: Prentice-Hall.
- David, E.E. & Deneš, P.B. (eds.) (1972). *Human communication: a unified view*. N.Y.: McGraw-Hill.
- Davies, A. (1978). Survey article: "Language testing". *LTLA* 11, 145-159; 215-231.

- Dechert, H.W. & Raupach, M. (eds.). (1980). *Temporal variables of speech. Studies in honour of Frieda Goldman-Eisler*. The Hague: Mouton.
- Denying, B. (1973). *Transformational grammar as a theory of language acquisition*. Cambridge: C.U.P.
- Dickerson, L.J. (1975). "The learner's interlanguage as a system of variable rules". *TESOL Quarterly* 9, 401-407.
- Dickerson, L.J. & Dickerson, W.H. (1977). "Interlanguage phonology: current research and future directions". In Corder, S.P. & Roulet, E. (eds.), *Actes du Séminaire colloque de linguistique appliquée de Neuchâtel*. Neuchâtel: Univ. de Neuchâtel, 18-29.
- Digeser, A. (1976). *Einführung in die Phonetik und Phonologie des Englischen*. Tübingen: Deutsches Inst. für Fernstudien.
- Dirven, R. (1977). "Derived adjectives in English and their Dutch equivalents". *ISB* 2.1, 146-169.
- Dirven, R. et al. (1976). *Die Leistung der Linguistik für den Englischunterricht*. Tübingen: Niemeyer.
- Dobson, J.M. (1979). "The notional syllabus: theory and practice". *English Teaching Forum* 17, 2-10.
- Donegan, P.J. (1976). "Raising and lowering". *CIS* 12, 145-160.
- Doty, G.G. & Ross, J. (1968). *Language and life in the USA. American English for foreign students* (2nd ed.). N.Y.: Harper & Row.
- Dowling, P. (1977). "On the creation and use of English compound nouns". *Lg* 53, 810-842.
- Dressler, W. (1977). "Elements of a polycentric theory of word formation". *Wiener Linguistische Gazette* 15, 13-32.
- Dulay, H. & Burt, M. (1973). "Should we teach children syntax?". *LL* 23, 245-258.
- Dulay, H. & Burt, M. (1974a). "Natural sequences in child second language acquisition". *LL* 24, 37-53.
- Dulay, H. & Burt, M. (1974b). "A new perspective on the creative construction process in child second language acquisition". *LL* 24, 253-278.
- Dulay, H. & Burt, M. (1977). "Remarks on creativity in language acquisition". In Burt, Dulay & Finocchiaro, 1977: 95-126.
- Dulay, H., Burt, M. & Hernandez, C. (1973). *The bilingual syntax measure*. N.Y.: Harcourt Brace Jovanovich.
- Ebel, R.L. (1978). "The case for norm-referenced measurement". *Educational Researcher* 7, 3-5.
- Engelen, B. (1975). *Untersuchungen zu Satzbauplan und Wortfeld in der geschriebenen deutschen Sprache der Gegenwart*. Munich: Hueber.
- Esser, J. (1975). *Intonationsteichen im Englischen*. Tübingen: Niemeyer.
- Ewen, C.J. (1977). "Aitken's law and the phonatory gesture in dependency phonology". *Lingua* 41, 307-329.
- Ewen, C.J. (1978). "The phonology of the diminutive in Dutch: a dependency account". *Lingua* 45, 141-173.
- Ewen, C.J. (forthcoming). *Aspects of phonological structure, with particular reference to English and Dutch*.
- Extra, G. (1978). *Bernte- en tweede- taalfverwerving: de ontwikkeling van morfologische vaardigheden*. Muiderberg: Coutinho.
- Fillmore, Ch.J. (1966). "A proposal concerning English prepositions". *MSLL* 19, 19-33.
- Fillmore, Ch.J. (1968). "The case for case". In Bach & Harms, 1968: 1-88.
- Fillmore, Ch.J. (1971). "Some problems for case grammar". *MSLL* 24, 35-56.
- Fillmore, Ch.J. (1977). "The case for case reopened". In Cole, P. & Sadock, J.M. (eds.), *Syntax and semantics 8: grammatical relations*. N.Y.: Academic Press, 59-81.
- Fink, S.R. (1977). *Aspects of a pedagogical grammar based on case grammar and valency theory*. Tübingen: Niemeyer.
- Fischer, G.H. (1978). "Probabilistic test models and their applications". *German Journal of Psychology* 2, 298-319.
- Fox, A. (1973). "Tone-sequences in English". *Archivum Linguisticum* 4, 17-26.
- Franks, J. (1969). "Eine Konzeption zum systematischen Aufbau von Eignungsuntersuchungen". *Psychologische Beiträge* 11, 390-405.
- Friedrich, P. (1970). "Shape in grammar". *Lg* 46, 379-407.
- Fromkin, V.A. (1968). "Speculations on performance models". *JL* 4.47-68.
- Fromkin, V.A. (1971). "The non-anomalous nature of anomalous utterances". *Lg* 47, 27-52.
- Fuchs, A. (1975). "'Normativer' und 'kontrastiver' Akzent". *Lingua* 38, 293-312.
- Gardner, T.J. (in press). "Case marking in the strict subcategorical domain of ditransitive verbs in English". In *Akademie der Wissenschaft und der Literatur, Mainz. Abhandlungen der geistes- und sozialwissenschaftlichen Klasse*.
- Gatbonton, E. (1978). "Patterned phonetic variability in second-language speech: a gradual diffusion model". *CMLR* 34, 335-347.
- Gewehr, W. (1974). *Lexematische Strukturen; zur Didaktik der Wortfeldtheorie und der Wortbildungslehre*. München: Ehrenwirth.
- Gibbon, D. (1975). *Perspectives of intonation analysis*. Diss. Göttingen. Repr. Berne: Lang, 1976.
- Gibbon, D. (1976). "Performatory categories in contrastive intonation analysis". In Chitoran, D. (ed.), *Second international conference of English contrastive projects*. Bucharest, 145-156.
- Gibbon, D. (1979). "Metalocutions, structural types and functional variation". To appear in *Papers and studies in contrastive linguistics* 13.
- Gimson, A.C. (1970). *An introduction to the pronunciation of English* (2nd ed.). London: Arnold.
- Gimson, A.C. (1977). *An English pronouncing dictionary* (14th ed.; originally compiled by Daniel Jones). London: Dent.
- Gimson, A.C. (1978). "Towards an international pronunciation of English". In Stevens, 1978: 45-53.
- Gleitman, L. & Gleitman, H. (1970). *Phrase and paraphrase: some innovative uses of language*. N.Y.: Norton.
- Glen, M.G.M. (1979). *Pragmatic functions of intonation*. Georgetown Univ. Ph.D., 1977. Ann Arbor: Univ. Microfilms International.
- Grauberg, W. (1971). "An error analysis in German of first-year university students". In Perren & Trim, 1971: 257-263.
- Greenbaum, S. (1976). "Syntactic frequency and acceptability". *Lingua* 40, 99-113.
- Greenberg, J.H. (ed.). (1978). *Universals of human language, vol. 2: Phonology*. Stanford: Stanford Univ. Press.
- Gregory, M. & Carroll, S. (1978). *Language and situation: language varieties and their social contexts*. London: Routledge and Kegan Paul.
- Gruber, J.S. (1967). "Look and see". *Lg* 43, 937-947.

- Hakuta, K. (1975). "Becoming bilingual at age five: the story of Uguisu". Unpubl. honors thesis, Harvard University.
- Halle, M. (1959). *The sound pattern of Russian*. The Hague: Mouton.
- Halle, M. (1973). "Prolegomena to a theory of word formation". *LJ* 4, 3-16.
- Halliday, M.A.K. (1964). "Syntax and the consumer". *MSLL* 17, 11-24.
- Halliday, M.A.K. (1967). *Intonation and grammar in British English*. The Hague: Mouton.
- Halliday, M.A.K. (1970a). *A course in spoken English: intonation*. London: O.U.P.
- Halliday, M.A.K. (1970b). "Language structure and language function". In Lyons, J. (ed.), *New horizons in linguistics*. Harmondsworth: Penguin, 140-165.
- Halliday, M.A.K. & Hasan, R. (1976). *Cohesion in English*. London: Longman.
- Halliday, M.A.K., McIntosh, A. & Stevens, P. (1964). *The linguistic sciences and language teaching*. London: Longman.
- Harris, D.P. (1969). *Testing English as a second language*. N.Y.: McGraw-Hill.
- Harrison, J. et al. (1974). *Topic English*. London: Macmillan.
- Hatch, E. (1978). "Acquisition of syntax in a second language". In Richards, 1978b: 34-70.
- Hawkins, P. (1976). "The role of NZ English in a binary feature analysis of English short vowels". *JIPA* 6, 50-66.
- Heaton, J.B. (1975). *Writing English language tests*. London: Longman.
- Heringer, H.-J. (1970). *Theorie der deutschen Syntax*. Munich: Hueber.
- Hermén, L. (1978). *On modality in English: a study of the semantics of the modals*. Lund: CWK Gleerup.
- Hetzron, R. (1975). "Where the grammar fails". *Lg* 51, 859-872.
- Hieke, A.E. (1975). *Master locator booklet for materials in TESOL*. Indiana: U.I.C.
- Hill, L.A. (1957). "'Compounds' and the practical teacher". *ELTJ* 12, 13-21.
- Hill, L.A. (1967). *Selected articles on the teaching of English as a foreign language*. London: O.U.P.
- Hoad, J. & Sloat, C. (1973). "English irregular verbs". *Lg* 49, 107-120.
- Holden, S. (ed.) (1977). *English for specific purposes*. London: Modern English Publications.
- Holmes, J. & Brown, D.F. (1976). "Developing sociolinguistic competence in a second language". *TESOL Quarterly* 10, 423-431.
- Hooper, J.B. (1976). *Introduction to natural generative phonology*. N.Y.: Academic Press.
- Hornby, A.S. (1954). *Guide to patterns and usage in English*. London: O.U.P.
- Hornby, A.S. (1974). *Oxford advanced learner's dictionary of current English*. London: O.U.P.
- Hornby, A.S. (with Cowie, A.P.) (1980). *Oxford advanced learner's dictionary of current English* (Revised ed.). Oxford: O.U.P.
- Hornke, L.F. (1976). *Grundlagen und Probleme antwortabhängiger Testverfahren*. Frankfurt: Haag & Herchen.
- Hornke, L.F. (1977). "Antwortabhängige Testverfahren: ein neuartiger Ansatz psychologischen Testens". *Diagnostica* 23, 1-14.
- Hornke, L.F. (1979a). "Four realisations of pyramidal adaptive testing". *Programmed Learning and Educational Technology* 16, 164-169.
- Hornke, L.F. (1979b). "Konstruktion eines adaptiv-antwortabhängigen Fragebogens zur Erfassung von Prüfungsangst". *Diagnostica* 25, 208-218.
- Hornke, L.F. (1979c). "Testdiagnostische Untersuchungsstrategien". In Groffman, K.J. & Michel, L. (Hrsg.), *Handbuch der psychologischen Diagnostik*, Bd. 6 (2. Auflage). Göttingen: Hogrefe.
- Hornke, L.F. (1979d), unter Mitarbeit von Sauter, M.P., Suessmlich, E.H. & Burghoff, U.R., *Konvergente und diskriminante Validität eines adaptiv-antwortabhängigen English tests für Anglistikstudienten*. (Unveröff.) Forschungsbericht, DFG HO-758-1. Um Düsseldorf, Erziehungswissenschaftliches Inst.
- Hudson, R. (1976). "Regularities in the lexicon". *Liagu* 40, 115-130.
- Huisjes-Schreuder, E. (1978). "Het effect van waarschuwen bij de presentatie van verwarrende woordparen". *Levende Talen* 337, 613-617.
- Hyman, L. (1975). *Phonology: theory and analysis*. N.Y.: Holt, Rinehart & Winston.
- Hymes, D. (1964). "Introduction: toward ethnographies of communication". *American Anthropologist* 66, 6:2:12-25. Reprinted in Giglioli, P.P. (ed.), *Language and social context*. Harmondsworth: Penguin, 1972:21-44.
- Hymes, D.H. (1972). "On communicative competence". In Pride, J.B. & Holmes, J. (eds.), *Sociolinguistics*. Harmondsworth: Penguin, 269-293.
- Ikenroth, J. & Nas, G. (1977). "A critical examination of a new way to define language learning objectives". *ISB* 2:1, 7-32.
- Ikegami, Y. (1976). "Syntactic structure and the underlying semantic patterns: a 'localistic' hypothesis". *Linguistics* 170, 31-44.
- International Phonetic Association (1949). *The principles of the International Phonetic Association*. London: University College.
- Ivimey, G. (1975). "The development of English morphology: an acquisition model". *Language and Speech* 18, 120-144.
- Jackendoff, R. (1975). "Semantic and morphological regularities in the lexicon". *Lg* 51, 639-671.
- Jackson, S.H. (1976). "Reading comprehension questions in tests of English as a foreign language". In *Kongressberichte der 7. Jahrestagung der Gesellschaft für angewandte Linguistik, GAI, e.V. Trier, Band II*, 167-184.
- Jacobs, R.A. & Rosenbaum, P.S. (1968). *English transformational grammar*. Waltham, Mass.: Ginn.
- Jäger, A.O. (1973). *Dimensionen der Intelligenz*. Göttingen: Hogrefe.
- Jakobson, R. (1939). "Zur Struktur des Phonems". In *Selected Writings*, vol. 1. The Hague: Mouton, 1962: 280-310.
- Jakobson, R. (1968). *Child language, aphasia, and phonological universals*. The Hague: Mouton.
- Jakobson, R., Fant, C.G.M. & Halle, M. (1951). *Preliminaries to speech analysis*. Cambridge, Mass.: MIT Press.
- Jakobson, R. & Halle, M. (1956). *Fundamentals of language*. The Hague: Mouton.
- James, A.R. & Westney, K.J.P. (1976). "Notes on some graphemic aspects of RP vowel notation". *JIPA* 6, 86-91.
- James, J. (1977). "Language transfer reconsidered". *ISB* 2:3, 7-21.
- Jassem, W. & Gibbon, D. (in press). "Redefining English accent and stress". *JIPA*.
- Jefferson, G. (1978). "Sequential aspects of storytelling in conversation". In Schenken- en, J. (ed.), *Studies in the organization of conversational interaction*. N.Y.: Academic Press, 219-248.

- Jespersen, O. (1924). *The philosophy of grammar*. London: Allen & Unwin.
- Jespersen, O. (1942). *A modern English grammar on historical principles*. Part VI: *Morphology*. Copenhagen: Munksgaard. Repr. London: Allen & Unwin, 1961.
- Johnson, K. (1977). "The adoption of functional syllabuses". *CMLR* 33, 667-680.
- Johnson, K. (1979). "Communicative approaches and communicative processes". In Brumfit & Johnson, 1979: 192-205.
- Johnson, K. & Morrow, K. (eds.) (forthcoming). *Communicative language teaching: issues and approaches*. London: Longman.
- Jones, D. (1950). *The phoneme: its nature and use*. Cambridge: Heffer.
- Jones, D. (1967). *Everyman's English pronouncing dictionary* (13th ed.). London: Dent.
- Jones, L. (1977). *Functions of English*. Cambridge: C.U.P.
- Jones, L. (1979). *Notions in English*. Cambridge: C.U.P.
- Jordens, P. (1977). "Rules, grammatical intuitions and strategies in foreign language learning". *JSB* 2/2, 5-76.
- Jordens, P. (1978). "Sprachspezifisch oder sprachneutral? Zur Anwendung einer Strategie im Fremdsprachenwerb". *Deutsch als Fremdsprache* 15, 367-370.
- Kasper, G. (1979). "Communication strategies: modality reduction". *JSB* 4, 266-283.
- Kastovsky, D. (1977). "Word-formation or: at the crossroads of morphology, syntax, semantics, and the lexicon". *FoL* 10 1/2, 1-33.
- Kastovsky, D. (1978). "Zum gegenwärtigen Stand der Wortbildungslehre des Englischen". *Lud* 36, 351-366.
- Kaye, J. & Lowenstamm, J. (1979). "Syllable structure and markedness theory". To appear in: *Proceedings of the 17th G.L.O.W. Conference*, Pisa, Italy.
- Kellerman, E. (1977). "Towards a characterization of the strategy of transfer in second language learning". *JSB* 2/1, 58-145.
- Kennedy, G.D. (1978). "Conceptual aspects of language learning". In Richards, 1978b: 117-133.
- Kingdon, R. (1957). "The irregular verbs". *ELTJ* 11, 123-133.
- Kiparsky, P. (1968). "Linguistic universals and linguistic change". In Bach & Harms, 1968: 171-202.
- Kleber, E.W. (1979). *Tests in der Schule*. München: Reinhardt.
- Knowles, G. (1974). "The rhythm of English syllables". *Lingua* 34, 115-147.
- Knowles, G. (1977). "The nature of phonological variables in Scouse". *York Papers in Linguistics* 7, 129-149.
- Kornelius, J. (1977). "Möglichkeiten kontrastiver Wortfeldanalysen in der Unterrichtspraxis". *Anglistik und Englischunterricht* 1, 179-189.
- Kozhevnikov, V.A. & Chistovich, L.A. (1965). *Speech: articulation and perception*. Washington, D.C.: U.S. Department of Commerce.
- Krashen, S.D. (1976). "Formal and informal linguistic environments in language acquisition and language learning". *TESOL Quarterly* 10, 157-168.
- Krashen, S.D. (1977). "The Monitor Model for adult second language performance". In Burt, Dula & Finocchiaro, 1977: 152-161.
- Krashen, S.D. (1979). "A response to McLaughlin, 'The Monitor Model: some methodological considerations'". *LL* 29, 151-167.
- Krashen, S.D., Butler, J., Birnbaum, R. & Robertson, J. (1978). "Two studies in language acquisition and language learning". *JFL* 39-40, 73-92.
- Krashen, S.D., Robertson, J.S., Loop, I.S. & Rietmann, K.J. (1977). "The basis for grammaticality judgments in adult second language performance". In Henning, C.A. (ed.), *Proceedings of the Los Angeles Second Language Research Forum*. UCLA, 173-179.
- Krashen, S.D., Sferlatza, V., Feidman, L. & Fathman, A. (1976). "Adult performance on the SLOPE test: more evidence for a natural sequence in adult second language acquisition". *LL* 26, 145-151.
- Kruisinga, E. (1932). *A handbook of present-day English* (5th ed.). Groningen: Noordhoff.
- Kuiper, K. (1972). *Rules of English noun compounds: implications for a theory of the lexicon*. PhD thesis, Simon Fraser Univ.
- Labov, W. (1972). "Transformations of experience in narrative syntax". In *Language in the inner city: studies in the Black English vernacular: Conduct and Communication* No. 3. Philadelphia: Univ. of Pennsylvania Press, 354-396.
- Labov, W. & Fanshel, D. (1977). *Therapeutic discourse: psychotherapy as conversation*. N.Y.: Academic Press.
- Labov, W. & Waletzky, J. (1967). "Narrative analysis: oral versions of personal experience". In Helms, J. (ed.), *Essays on the verbal and visual arts*. Seattle: Univ. of Washington Press, 12-44.
- Ladd, D.R. (1978a). "Stylized intonation". *Lg* 54, 517-540.
- Ladd, D.R. (1978b). *The structure of intonational meaning*. Diss. Cornell. To appear at Indiana Univ. Press, Bloomington.
- Ladefoged, P. (1971). *Preliminaries to linguistic phonetics*. Chicago: Univ. of Chicago Press.
- Lado, R. (1961). *Language testing. The construction and use of foreign language tests*. London: Longman.
- Lado, R. & Fries, C.C. (1970). *English pattern practices*. Ann Arbor: Univ. of Michigan Press.
- Lakoff, G. (1977). "Linguistic gestalts". *CLS* 13, 236-287.
- Lakoff, R. (1972). "Language in context". *Lg* 48, 907-927.
- Landa, L.N. (1974). *Algorithmization in learning and instruction*. Englewood Cliffs: Educational Technology Publications.
- Langendoen, D. (1968). *The London school of linguistics*. Research Monograph No. 46. Cambridge, Mass.: M.I.T. Press.
- Larsen-Freeman, D.E. (1975a). *The acquisition of grammatical morphemes by adult learners of English as a second language*. Unpublished doctoral dissertation. Univ. of Michigan, Ann Arbor.
- Larsen-Freeman, D.E. (1975b). "The acquisition of grammatical morphemes by adult ESL students". *TESOL Quarterly* 9, 409-419.
- Larsen-Freeman, D.E. (1976). "An explanation for the morpheme acquisition order of second language learners". *JL* 26, 125-134.
- Lass, R. (1974). "Linguistic orthogenesis? Scots vowel quantity and the English length conspiracy". In Anderson & Jones, 1974b: 311-352.
- Lass, R. (1976). *English phonology and phonological theory*. Cambridge: C.U.P.
- Lass, R. & Anderson, J.M. (1975). *Old English phonology*. Cambridge: C.U.P.
- Laver, J. (1970). "The production of speech". In Lyons, J. (ed.), *New horizons in linguistics*. Harmondsworth: Penguin, 53-75.
- Lee, W.R. (1956). "English intonation: a new approach". *Lingua* 5, 345-371.

- Lee, W.R. (1977). "What type of syllabus for the teaching of English as a foreign or second language?" *JRAL* 15, 246-249.
- Leech, G. & Svartvik, J. (1975). *A communicative grammar of English*. London: Longman.
- Lees, R. (1960). *The grammar of English nominalizations*. The Hague: Mouton.
- Lees, R. (1970). "Problems in the grammatical analysis of English nominal compounds". In Bierwisch, M. & Heidolph, K. (eds.), *Progress in linguistics*. The Hague: Mouton, 174-186.
- Lehiste, I. (1970). *Suprasegmentals*. Cambridge, Mass.: MIT Press.
- Lehrer, A. (1974). *Semantic fields and lexical structure*. Amsterdam: North-Holland.
- Leventon, E.A. (1971). "Over-indulgence and under-representation: aspects of mother-tongue interference". In Nickel, G. (ed.), *Papers in contrastive linguistics*. Cambridge: C.U.P., 115-121.
- Levi, J.N. (1974). "On the alleged idiosyncrasy of nonpredicate NPs". *CLS* 10, 402-415.
- Levi, J.N. (1978). *The syntax and semantics of complex nominals*. N.Y.: Academic Press.
- Levinson, S.C. (1980). Survey article: "Speech act theory: the state of the art". *LTLA* 13, 5-24.
- Lewis, G. (1967). *Turkish grammar*. Oxford: O.U.P.
- Liberman, M.Y. (1975). *The intonational system of English*. Diss. M.I.T. Repr. Indiana: IULC, 1978.
- Liberman, M.Y. & Prince, A. (1977). "On stress and linguistic rhythm". *LJ* 8, 249-336.
- Lieberman, P. (1976). "Phonetic features and physiology: a reappraisal". *JP* 4, 91-112.
- Lindau, M. (1978). "Vowel features". *Lg* 54, 541-563.
- Lindqvist, K.-G. (1980). *Studies on the focal sense of the prepositions IN, AT, ON and TO in modern English*. Lund & Copenhagen: Munksgaard.
- Lindqvist, K.-G. (1976). *A comprehensive study of conceptions of locality in which English prepositions occur*. Stockholm: Almqvist & Wiksell.
- Ljung, M. (1970). *English denominal adjectives: a generative study of the semantics of a group of high-frequency denominal adjectives in English*. Gothenburg, Studies in English no. 21. Lund: Studentlitteratur.
- Ljung, M. (1975). Review of H. Marchand, "Studies in syntax and word formation". *Kastovsky, D.* (ed.), *FL* 13, 475-480.
- Ljung, M. (1977). "Problems in the derivation of instrumental verbs". In Brekle & Kastovsky, 1977: 165-179.
- Lord, F.M. (1971). "The self-scoring flexilevel test". *Journal of Educational Measurement* 8, 147-151.
- Lord, F.M. & Novick, M.R. (1969). *Statistical theories of mental test scores*. Reading, Mass.: Addison-Wesley.
- Lugton, R.C. & Heintz, C.H. (eds.). (1971). *Toward a cognitive approach to second language acquisition*. Philadelphia: Centre for Curriculum Development.
- Lyons, J. (1963). *Structural semantics*. Oxford: Blackwell.
- Lyons, J. (1968). *Introduction to theoretical linguistics*. Cambridge: C.U.P.
- Lyons, J. (1977). *Semantics*. Cambridge: C.U.P.
- Mackay, R. & Mountford, A. (eds.). (1978). *English for specific purposes*. London: Longman.
- Mackenzie, J.L. (1977). "The marking of agents and instruments in contemporary standard German". *Work in progress* 10, 116-128. Dept. of Linguistics, Univ. of Edinburgh.
- MacNeillage, P.F. (1979). "Speech production". In *Proceedings of the Ninth International Congress of Phonetic Sciences*, vol. 1. Copenhagen: Inst. of Phonetics, Univ. of Copenhagen, 11-39.
- Marchand, H. (1960). *The categories and types of present-day English word-formation*. Wiesbaden: Harrassowitz. (2nd ed. München: Beck).
- March, B. (1975). *Derivative character of intonation in English and Polish*. Diss. Lublin, Poland.
- Matthews, P. (1974). *Morphology: an introduction to the theory of word-structure*. Cambridge: C.U.P.
- Meier, H.H. (1975). "The state of idiomatics". *Dutch Quarterly Review* 5, 163-179.
- Meys, W.J. (1975). *Compound adjectives in English and the ideal speaker-listener: a study of compounding in a transformational-generative framework*. Amsterdam: North-Holland.
- Meys, W.J. (1979a). "Booij over Nederlandse morfologie". *Spektator* 9, 75-87.
- Meys, W.J. (1979b). "New developments in morphology". *Dutch Quarterly Review* 9, 300-320.
- Meys, W.J. (1980). "Morphemic make-up and lexical dynamics". In van Alkemade, D. J. et al. (eds.), *Linguistic studies offered to Berthe Siertsema*. Amsterdam: Rodopi, 195-204.
- Michel, L. (1964). "Allgemeine Grundlagen psychometrischer Tests". In Heiss, R., Groffmann, K.-J. & Michel, L. (Hrsg.), *Psychologische Diagnostik, Handbuch der Psychologie*. Bd. 6. Göttingen: Hogrefe, 19-70.
- Miller, P.D. (1973). "Bleaching and coloring". *CLS* 9, 386-397.
- Morley, J. (1976). *Improving aural comprehension. Student's workbook*. Ann Arbor: Univ. of Michigan Press.
- Morrow, K. (1977). "Authentic texts and ESP". In Holden, 1977: 13-15.
- Munby, J. (1978). *Communicative syllabus design*. Cambridge: C.U.P.
- Natalicio, D. & Natalicio, L. (1969). "The child's learning of English morphology revisited". *LJ* 19, 205-215.
- Nehls, D. (1976). *Tempus, Aspekt und Modus im Englischen*. Tübingen: Deutsches Inst. für Fernstudien.
- Neisser, U. (1967). *Cognitive psychology*. Englewood Cliffs, N.J.: Prentice-Hall.
- Newmark, L. (1966). "How not to interfere with language learning". *International Journal of American Linguistics* 32, 77-83.
- Nilsen, D.L.F. (1971). "The use of case grammar in teaching English as a foreign language". *TESOL Quarterly* 5, 293-299.
- Nooteboom, S.G. & Cohen, A. (1976). *Spreeken en verstaan*. Assen/Amsterdam: van Gorcum.
- O'Connor, J.D. & Arnold, G.F. (1973). *The intonation of colloquial English* (2nd ed.). London: Longman.
- Oller, J.W., Jr. (1979). *Language tests at school*. London: Longman.
- O'Neill, R. (1970). *English in situations*. London: O.U.P.
- O'Neill, R. (1973). *Kernel lessons plus. A post-intermediate course. Student's book*. London: Longman.

- O'Neill, R. (1977). "The limits of functional/notional syllabuses - or 'My guinea pig died with its legs crossed'". In Holden, 1977:8-11.
- O'Neill, R. et al. (1971). *Kernel lessons intermediate. Student's book*. London: Longman.
- Palmer, F.R. (1979). *Modality and the English modals*. London: Longman.
- Palmer, H.E. (1921). *The principles of language-study*. London: Harrap. Repr. London: O.U.P., 1964.
- Palmer, H.E. (1924). *A grammar of spoken English*. Cambridge: Heffer.
- Perkins, K. & Larsen-Freeman, D. (1975). "The effect of formal language instruction on the order of morpheme acquisition". *LL* 25, 237-242.
- Petten, G. & Trim, J. (eds.) (1971). *Applications of linguistics*. Cambridge: C.U.P.
- Pike, K.L. (1945). *The intonation of American English*. Ann Arbor: Univ. of Michigan Press.
- Pike, K.L. (1954). *Language in relation to a unified theory of the structure of human behaviour*. Glendale: Summer Inst. of Linguistics.
- Pike, K.L. (1979). "Universals and phonetic hierarchy". In *Proceedings of the Ninth International Congress of Phonetic Sciences*, vol.2. Copenhagen: Inst. of Phonetics, Univ. of Copenhagen, 48-52.
- Polanyi-Bowditch, L. (1976a). "Why the Whats are When: mutually contextualizing realms of narrative". *Proceedings of the Second Annual Meeting of the Berkeley Linguistics Society*. Berkeley, Cal.: Berkeley Linguistics Society, 59-78.
- Polanyi-Bowditch, L. (1976b). "The role of redundancy in cohesion and evaluative functioning in narrative: a grab for the referential hierarchy". *Rackham Literary Studies* (Ann Arbor) 7, 19-38.
- Polanyi, L. (1978a). "False starts can be true". *Proceedings of the Fourth Annual Meeting of the Berkeley Linguistics Society*. Berkeley, Cal.: Berkeley Linguistics Society, 628-639.
- Polanyi, L. (1978b). *The American story: social and cultural constraints on the meaning and structure of stories in conversation*. Univ. of Michigan, Ph.D. Dissertation.
- Polanyi, L. (1978c). "The adequate paraphrase: the story in all the talk". Talk delivered at LSA Winter Meeting. Boston, Mass. U.S.A. Dec. 30.
- Polanyi, L. & Simpson, W. (1978). "A tripartite model for story understanding". Talk delivered at 7th Co-Ling International Meeting. Bergen, Norway, Aug. 26.
- Popham, W.J. (1978). "The case for criterion-referenced measurement". *Educational Researcher* 7, 6-10.
- Porter, J. (1977). "A cross-sectional study of morpheme acquisition in first language learners". *LL* 27, 47-61.
- Porzig, W. (1950). *Das Wunder der Sprache*. Berne: Francke.
- Pratt, M.L. (1975). *Rapid review of English grammar* (2nd ed.). Englewood Cliffs, N.J.: Prentice-Hall.
- Prinz, J. (1977). "Die Theorie des sprachlichen Bildes und die Syntax slavischer Präpositionen". *FoL* 10, 35-84.
- Pynsent, R.B. (1972). "The objective reading comprehension test". In Pynsent, R.B. (Hrsg.), *Objektive Tests im Englischunterricht der Schule und Universität*. Frankfurt: Athenäum, 51-64.
- Quirk, R., Greenbaum, S., Leech, G. & Svartvik, J. (1972). *A grammar of contemporary English*. London: Longman.
- Reibel, D.A. (1969). "Language learning analysis". *JRAL* 7, 283-294.
- Richards, J.C. (1978a). "Models of language use and language learning". In Richards, 1978b: 94-116.
- Richards, J.C. (ed.) (1978b). *Understanding second and foreign language learning issues and approaches*. Rowley, Mass.: Newbury House.
- Richards, J.C. (1978c). "Introduction: understanding second and foreign language learning". In Richards, 1978b: 1-14.
- Roeper, Th. & Siegel, M. (1978). "A lexical transformation for verbal compounds". *LJ* 9, 190-260.
- Rohdenburg, G. (1969). "Kasusgrammatik und kontraktive Analyse". *PAKS-Arbeitsbericht* 2, 35-58. Uni Kiel.
- Rosansky, E. (1976). "Methods and morphemes in second language acquisition research". *LL* 26, 409-425.
- Roulet, E. (1976). Survey article: "Théories grammaticales et pédagogie des langues". *LTLA* 9, 197-211.
- Rudzka, B. & Ostyn, P. (1976). "L'Easeignement du vocabulaire aux niveaux intermédiaire et avancé". In Matter, J. (ed.), *Technologie de l'enseignement en Artikelen* 1, 69-102.
- Rutherford, W.E. (1977). *Modern English* (2nd ed.). 2 vols. N.Y.: Harcourt Brace Jovanovich.
- Sacks, H. *Lecture notes: stories in conversation*. Spring, 1970 and Fall, 1971. Mimeo.
- Samelson, W. (1974). *English as a second language. Phase one*. Reston, Va.: Reston.
- Sampson, G.P. (1978). "A model for second language learning". *CMLR* 34, 442-454.
- Saporta, S. (1966). "Applied linguistics and generative grammar". In Valdman, A. (ed.), *Trends in language teaching*. N.Y.: McGraw-Hill, 81-92.
- Sauter, M.P. (1978). *Entwicklung und Erprobung eines antwortabhängigen Testverfahrens zur Überprüfung des Leseverständnisses in Englisch*. Unveröff. Staatsexamensarbeit. Erziehungsweis. Inst. der Uni Düsseldorf.
- Sauter, M.P. (1979). "Adaptive Tests im Fremdsprachenunterricht". In *Kongressbericht der 9. Jahrestagung der Gesellschaft für angewandte Linguistik*. *GAL e.V.*, Bd.3. Heidelberg: Groos.
- Sauter, M.P. & Horáke, L.F. (1979). "Adaptives Testen im Englischunterricht. Entwicklung eines flexiblen Testverfahrens zur Messung von Leseverständnis". *Anglistik und Englischunterricht* 8, 151-166.
- Schane, S.A. (1971). "The phoneme revisited". *Lg* 47, 503-521.
- Schane, S.A. (1973). "[back] and [round]". In Anderson & Kiparsky, 1973: 174-184.
- Schank, R. & Wilks, Y. (1974). "The goals of linguistic theory revisited". *Lingua* 34, 301-326.
- Schenkein, J. (1978). *Studies in the organization of conversational interaction*. N.Y.: Academic Press.
- Schmidt, K.A. (1974). *Easy ways to enlarge your German vocabulary*. N.Y.: Dover Publications.
- Schultink, H. (1973). "Het prefix ge- in Nederlandse (en Duitse) veelleden deelwoorden". *De Nieuwe Taalgids* 64, 409-418. Repr. in Booij, 1979.
- Schultink, H. (1977). "Nederlandse affixen en hun boundaries". *Spektator* 6, 472-476.
- Selinker, L. (1972). "Interlanguage". *JRAL* 10, 209-231.
- Sharwood Smith, M.A. (1977a). *Aspects of future reference in a pedagogical grammar of English*. Frankfurt/Main: Lang.

- Sharwood Smith, M.A. (1977b). "Applied linguistics and the psychology of instruction: a case for transfusion". *SSLA* 1.2. 91-117.
- Shaw, A.M. (1977). Survey article: "Foreign-language syllabus development: some recent approaches". *JFLA* 10. 217-233.
- Sierstema, B. (1970). "Morphemic make-up and word view". In Jakobson, R. & Kawamoto, S. (eds.), *Studien in general and oriental linguistics*. Tokyo: T.E.C. Co. Ltd, 525-534.
- Smith, L.P. (1925). "English idioms". In *Words and idioms*. London: Constable.
- Spang-Hanssen, H. (1959). *Probability and structural classification*. Copenhagen: Roskilde & Bagger.
- Stampe, D. (1972). "On the natural history of diphthongs". *CLS* 8. 578-590.
- Stafford, C. & Cowitt, G. (1978). "Monitor use in adult second language production". *JFL* 39-40. 103-125.
- Stein, G. (1973). *English word-formation over two centuries*. Tübingen: Gunter Narr.
- Stein, G. (1974). "Word-formation and language teaching". *DNS* 23. 316-331.
- Stevens, K.N. (1972). "The quantal nature of speech: evidence from articulatory-acoustic data". In David & Denes, 1972: 51-66.
- Stockwell, R.P. (1960). "The place of intonation in a generative grammar". *Jg* 36. 361-367.
- Storm, P. (1977). "Predicting the applicability of Dative Movement". In Fox, S.E., Beach, W.A. & Philosph, S. (eds.), *CLS book of squibs*, 101-102.
- Straker Cook, R. (1978). "A 'social survival' syllabus". In Mackay & Mountford, 1978:99-126.
- Stratton, F. (1977). "Putting the communicative syllabus in its place". *TESOL Quarterly* 11. 131-141.
- Strauß, J. (1975). "Kontrastive Lexik". In Werner, O. & Fritz, G. (eds.), *Deutsch als Fremdsprache und neuere Linguistik*. München: Hueber, 222-235.
- Strevens, P. (1977). *New orientations in the teaching of English*. Oxford: O.U.P.
- Strevens, P. (ed.) (1978). *In honour of A.S. Hornby*. Oxford: O.U.P.
- Sweet, H. (1899). *The practical study of languages*. London: Dent. Repr. London: O.U.P., 1964.
- Tarone, E.E. (1976). "Some influences on interlanguage phonology". *WPB* 8. 87-111.
- Tarone, E.E. (1979). "Report on communication strategies workshop, Hanasaari". *ISB* 4.230.
- Tarone, E.E., Cohen, A.D. & Dumas, G. (1976). "A closer look at some interlanguage terminology: a framework for communication strategies". *WPB* 9. 77-90.
- Tarone, E.E., Frauenfelder, U. & Selinker, L. (1976). "Systematicity/variability and stability/instability in interlanguage systems". In Brown, H.D. (ed.), *Papers in Second Language Acquisition*. Language Learning Special Issue No. 4, January 1976, 93-134.
- Taylor, B. (1975). "The use of overgeneralization and transfer. Learning strategies by elementary and intermediate students of ESL". *JL* 25. 73-107.
- Tench, P. (1976). "Double ranks in a phonological hierarchy". *JL* 12. 1-20.
- Thomson, A.J. & Martinet, A.V. (1969). *A practical English grammar* (2nd ed.). London: O.U.P.
- Thurstone, T.G. (1941). "Primary mental abilities of children". *Educational and Psychological Measurement* 1. 105-116.
- Trager, G.L. & Smith, H.L. (1951). *An outline of English seen from scratch in 100 lessons*, Occasional Papers 3. Norman, Oklahoma: Hartenbourg Press.
- Trier, J. (1931). *Der deutsche Wortschatz im Sprachbereich des fremdsprachigen Hochschülers*. Winter.
- Trubetzkoy, N.S. (1939). *Grundzüge der Phonologie*. Traduzione critica in linguistica di Prague 7. Repr. Göttingen: Vandenhoeck & Ruprecht, 1958.
- Trubetzkoy, N.S. (1969). *Principles of phonology*. Berkeley & Los Angeles: Univ. of California Press.
- Valdman, A. (1979). "Pidginization and the elaboration of learner-based syllabi in foreign language instruction". *SSLA* 2.1. 59-72.
- van Buren, P. (1974). "Contrastive analysis". In Allen & Corder, 1974:279-312.
- van Buren, P. (1975). "Semantics and language teaching". In Allen & Corder, 1975: 122-154.
- van Buuren, L. (1978). "Phonological hierarchy in English". In Zonneveld, W. (ed.), *Linguistics in the Netherlands 1974-1976*. Lisse: de Ridder, 70-80.
- van Dijk, T.A. (1977). "Pragmatic connectives". *ISB* 2.2. 77-93.
- van Ek, J.A. (1972). *Modern languages: the threshold level in foreign language learning by adults*. Strasbourg: Council of Europe.
- van Ek, J.A. (1977). *The threshold level for modern language learning in schools*. London: Longman.
- Vennemann, T. & Ladefoged, P. (1973). "Phonetic features and phonological features". *Lingua* 32. 61-74.
- Vestergaard, T. (1977). *Prepositional phrases and prepositional verbs: a study in grammatical function*. The Hague: Mouton.
- Wang, W.S.-Y. (1968). "Vowel features, paired variables, and the English vowel shift". *Lg* 44. 695-708.
- Warren, B. (1978). *Semantic patterns of noun-noun compounds*. Göteborg: Acta Universitatis Gothoburgensis.
- Watson-Jones, P. (1979). *Penguin functional English: Impact. English for social interaction*. Harmondsworth: Penguin.
- Weiss, F. (1975). *Grund- und Aufgabewortschatz Englisch* (2nd ed.). Stuttgart: Klett.
- Weiss, D.J. (1974). "Strategies of adaptive ability measurement". Univ. of Minnesota, Dept. of Psychology, Research Report 74-5.
- Weiss, D.J. (1975). "Computerized adaptive trait measurement: problems and prospects". Univ. of Minnesota, Dept. of Psychology, Research Report 75-5.
- Weiss, D.J. (1976). "Computerized ability testing 1972-1975". Univ. of Minnesota, Dept. of Psychology, Final Report.
- Weiss, D.J. (1978). *Proceedings of the 1977 computerized adaptive test conference*. Psychological Sciences Division, Office of Naval Research.
- Weiss, D.J. & Betz, N.E. (1973). "Ability measurement: conventional or adaptive?". Univ. of Minnesota, Dept. of Psychology, Research Report 73-1.
- Wenk, B.J. (1979). "Articulatory setting and de-fossilization". *ISB* 4. 202-220.
- Westney, P. (1977). Review of Allen & Corder (1973, 1974, 1975) and Allen & Davies (1977). *JL* 27. 421-431.
- Westney, P. (forthcoming). Review article on three recent works on the English model. *JRAL* 19.

- Whorf, B.L. (1956). *Language, thought and reality: selected writings of Benjamin Lee Whorf*, ed. Carroll, J.B. N.Y.: Wiley.
- Widdowson, H.G. (1978). *Teaching language as communication*. Oxford: O.U.P.
- Widdowson, H.G. (1979a). *Explorations in applied linguistics*. Oxford: O.U.P.
- Widdowson, H.G. (1979b). "The significance of simplification". In Widdowson, 1979a: 192-201.
- Wigdorsky, L. (1971). "Research in applied linguistics and its impact upon language teaching materials". In Ferren & Trim, 1971:463-469.
- Wilkins, D.A. (1972a). *Linguistics in language teaching*. London: Arnold.
- Wilkins, D.A. (1972b). *An investigation into the linguistic and situational content of the common core in a unit credit system*. Strasbourg: Council of Europe.
- Wilkins, D.A. (1974). "Grammatical, situational and notional syllabuses". In Verdoodt, A. (ed.), *Proceedings of the Third International Congress of Applied Linguistics*, vol. 2. Heidelberg: Groos, 254-265.
- Wilkins, D.A. (1976). *Notional syllabuses*. Oxford: O.U.P.
- Wode, H. (1976). "Developmental sequences in naturalistic L2 acquisition". *WPB* 11, 1-31.
- Wode, H., Bahns, J., Bedley, M. & Frank, W. (1977). "An alternative approach to morpheme order". *ISB* 2/3, 39-63.
- Wood, R. (1973). "Response contingent testing". *Review of Educational Research* 43, 529-544.
- Wyatt, W. (1965). Review of Lyons (1963). *Lg* 41, 504-512.
- Yngve, V. (1960). "A model and a hypothesis for language structure". *Proceedings of the American Philosophical Society* 104, 444-466.
- Yorio, C.A. (1973). "The generative process of intonation". *Linguistics* 97, 111-123.
- Zandvoort, R. (1974). *A handbook of English grammar* (13th ed.). Groningen: Wolters.
- Zimmermann, R. (1972). "Die Kasusgrammatik in der angewandten und kontrastiven Linguistik". *IRAL* 10, 167-178.

Notes on Contributors

Colin J. Ewen graduated from University of Edinburgh in English Language and Linguistics (1974). Since 1975 Lecturer in Dept. of English, University of Leiden. Currently working on Ph.D. thesis (Aspects of Phonological Structure), and, with J.M. Anderson (Edinburgh), writing an introduction to dependency phonology, and editing a collection *Studies in Dependency Phonology*.

Dafydd Gibbon was Wissenschaftlicher Assistent at University of Göttingen; after a period as visiting Professor of Linguistics at University of Bielefeld, is now Professor in Dept. of Languages, Fachhochschule, Cologne. Current research interests: discourse phonology and discourse semantics, functional language variation, and methodological foundations of linguistic theory. Major publication: *Perspectives of Intonation Analysis* (1976).

Adolf E. Hieke gained B.A. (German and English) and M.A. (General Linguistics) from University of Colorado, and M.Phil. (Linguistics) from University of Kansas. Has taught Linguistics and TESL/TEFL at Universities of Puerto Rico, Northern Iowa, and, since 1975, Tübingen, and is currently completing his Ph.D. in his major research field, non-native fluency phenomena.

Lutz F. Hornke received Diploma in Psychology from University of Mannheim, M.A. from Stanford University and Ph.D. (Psychology and Education) at Mannheim. Teaches at University of Düsseldorf; at present acting full Professor of Educational Research Methods at Phillips-University, Marburg. Special research field: adaptive testing within educational and psychological diagnostics.

Allan James received M.A. from University of Leeds (1969). Taught phonetics and linguistics at Universities of Tübingen and Nairobi, and at RGIT, Aberdeen; since 1976 Lecturer at University of Amsterdam. Main research interests: phonetic problems of foreign language learning and articulatory disabilities; currently working on phonological description of second language production.

Juliane James graduated at University of Tübingen (German and English) in 1976. Has taught German at Universities of Nijmegen and Leiden; currently at Goethe-Institut, Amsterdam. Main research interest: psycholinguistic aspects of second language learning; also currently working on programmed approach to listening comprehension.

J. Lachlan Mackenzie gained his Ph.D. at University of Edinburgh (1978), and is Lecturer in English Language at Free University of Amsterdam. Currently engaged on cross-language study of case-marker morphology; general research interests include relative adequacy of case, relational and functional grammar, and the pedagogical potential of such grammars for advanced teaching.

Willem J. Meys studied at Free University of Amsterdam and University of Southampton; Ph.D. at Free University of Amsterdam (1975). Has taught at Free University of Amsterdam and, since 1975, at University of Amsterdam. Research in second language teaching, syntax and morphology; major publication: *Compound Adjectives in English and the Ideal Speaker-Listener* (1975).

Livia Polanyi received B.A. from Goddard College, Vermont and M.A. and Ph.D. from University of Michigan. Teaches American Culture and Discourse Analysis at University of Amsterdam; research interests in cultural semiotics and narrative analysis. Dissertation, *The American Story: Social and Cultural Constraints on the Meaning and Structure of Stories in Conversation*, to be published shortly.

Michael P. Sauter recently graduated from University of Düsseldorf (English and Education), after working for some years on projects in adaptive testing, and completing a thesis in this field. Is currently teaching English and Education at a secondary school.

Michael Sharwood Smith received his M.A. from University of St. Andrews, Dip. Appl. Ling. from Edinburgh and Ph.D. from Poznań. Currently Senior Lecturer in English Dept., University of Utrecht. Major research interest: an inter-university pedagogical grammar project. Editor, *Interlanguage Studies Bulletin*. Major publication: *Aspects of Future Time Reference in a Pedagogical Grammar of English* (1977).

Christopher J. Tisford received B.A. (German) from University College of North Wales and M.A. (Linguistics) from University of Reading. Taught at University of Tübingen, and currently University of Cologne. Major research interests: translation and contrastive analysis, and problems of collocation.

Paul Westney received M.A.s at Universities of Cambridge and Essex. Has taught EFL, linguistics and applied linguistics. Since 1973 at University of Tübingen, with responsibility for phonetics. Main research interests: phonetics and pedagogical aspects of modality.

Margaret Winck graduated in English from University of Leicester. Since 1969 on academic staff of Deutsches Institut für Fernstudien, University of Tübingen, engaged primarily in in-service further training of teachers and preparing and recording distance study course materials. Has in addition direct teaching experience at different levels, and is co-author of various school textbooks.

Irene Winter graduated in European Studies from University of East Anglia. From 1968 to 1980 worked in same project team at DIFF, Tübingen as Margaret Winck (see above). Currently teaches English at Colegio Aleman, Barcelona.