CONTRASTIVE STUDIES IN ENGLISH AND GERMAN INTONATION: A SURVEY[1]

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1.1 *Introductory Remarks.* A considerable portion of the analytical and descriptive work which has been carried out in the field of intonation originated from the necessity of teaching foreigners. Pike (1945) started from the problems encountered in teaching Latin-American students; the British teaching tradition with, for instance, H. E. Palmer (1922), R. Kingdon (1958), O'Connor-Arnold (1961, 1973[2]) is well-known, and also von Essen (1964) and Stock-Zacharias (1972) refer to matters of language teaching. But although the same impetus might have united the studies in intonation, the theoretical position of the various analysts, and their selection and interpretation of the data resulted in a number of differences manifested in their studies. It is our aim to examine the areas of sameness and difference in some of the major works on intonation in English and German, in order to establish a *tertium comparationis* essential to any contrastive work, and in order to define those areas of research which have to be investigated if suggestions for educational aspects are to be placed on a sound scientific basis.

Reasons of space compel us to restrict our discussion to the intonational nuclei, omitting all the other parts which constitute the intonation contour of a whole utterance. A study of all the units or elements of intonation, and the rules that govern their combination, as presented by various writers on this subject, would show that all intonational analyses assume the existence of obligatory nuclei of intonation, but that they are at variance with

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[1] This article is a revised version of a paper read at the fifth Polish conference on contrastive linguistics, Dec. 13–15, 1973, in Ustronie, Poland. I am grateful to the participants in the discussion which followed the paper and to my colleagues K. Sprengel and H. W. Viethen for their very helpful comments and advice.

regard to their number and to the existence, delimitation, or function of the constituents of larger units.

1.2 Pitch Level vs. Contour Approach. A few preliminary remarks appear expedient with respect to the seemingly fundamental difference in approach which is linked to the descriptions of pitch movement by way of a succession of pitch levels (2–4, 3–1, etc.) or by contours or pitch envelopes (Cf. Bolinger 1951). It would appear that the two approaches are basically comparable, as Crystal (1969 : 214) points out in a discussion on a study by Trim. Nearly all the descriptions which make use of contours specify the type of contours as *high*, *low*, or *wide* and *narrow*. The same phenomena may be indicated through pitch levels, 2–4 being high or wide and 3–4 being low or narrow[2]. For both types of approach it is still an open question as to which pitch level sequences or types of contour are significant in English and belong to the intonation system (cf. Table 1: O'Connor-Arnold include two types of fall among their nuclear tones, whereas Halliday has only one, although he lists three types of fall among his secondary tones [medium, wide and narrow]). For the rest of our discussion we shall take for granted that the analysis and description of intonation systems is possible and sensible with the help of contours.

The following Table 1 exemplifies the variation as regards basic or nuclear intonation contours exhibited in the studies of different analysts, and at the same time shows that they all work on the assumption that some contours are to be counted as essential types.

2.0 Areas for Comparison. Generally, it would appear that the so-called *emic* and *etic* levels of language lend themselves to contrastive analysis. As with all such studies, however, the selection of phenomena is guided by insights and criteria from the functional or meaningful side of language, and therefore the respective areas will be examined first.

2.1 The Functions of Intonation Contours. The expression *functions of intonation contours* (Cf. O'Connor-Arnold (1973 : 4f.): "roles of intonation") is used here to indicate that intonation contours serve a purpose in the communicative speech act, which is agreed upon by all writers on this subject[3]. The assumption for contrastive analysis is that at least some of the function (or purposes) of intonation are common to several, or probably all, languages and that therefore those languages are comparable with regard to the particular ways in which the functions of intonation are realized in utterances.

[2] Gunter (1972 : 197f.) argues explicitely for contours and against discrete pitch levels. Cf. also Pike (1945 : 20ff).

[3] The term *function* is applied to the communicative uses of intonation by various writers (e.g. Crystal 1969: 286; Stock, Zacharias 1972: 6ff., 22ff.), and we therefore propose to retain it in this rather non-technical sense. It should be kept in mind that we do not adopt this term from any specific theory.

Table 1

Analyst	Basic Contours (Nuclei)								
O'Connor-Arnold	Low Fall ↘No	High Fall ↘No	Low Rise ↗No	High Rise ↗No	Fall-Rise ↘↗No	Rise-Fall ↗↘No	Mid-Level →No		
Pike	[0]2–4	[0]2 3	[0]3 2		[0]2 4 3				
Halliday	(1) Falling		(3) Low Rising	(2) High Rising Falling-Rising (pointed)	(4) Falling Rising (rounded)	(5) Rising Falling (rounded)		(1 – 3)	(5 : 3)
Gunter	Falling		Low Rising	High Rising	Falling-Rising				
v. Essen	Terminaler Typ		Progredienter Typ	Interrogativer Typ					
Isačenko-Schädlich	Fall		Rise						
Stock-Zacharias	kontinuierlich fallend	Tonbruch fallend	kontinuierlich steigend	Tonbruch steigend	doppelter Tonbruch fallend-tieftonig-steigend	doppelter Tonbruch steigend-hochtonig-fallend	kontinuierlich schwebend		

The first type of function which we would like to distinguish is often labelled grammatical (or functional, structural) meaning of intonation. We prefer the term *discourse function of intonation contours*, since certain contours in conjunction with pauses can be employed to divide a longer stretch of speech into smaller units not necessarily corresponding to grammatically defined units, with the type of nuclear contour indicating either finality or non-finality of the respective unit. Thus, for instance, Delattre *et al.* (1965) distinguish between contours signalling finality and non-finality with German declarative sentences (the latter being subdivided into major and minor continuation). Halliday (1970 : 23) suggests a similarly twofold division between a basically falling and a basically rising type of contour: the former signals 'certainty', the latter 'uncertainty' (cf. also Crystal 1969:201 ff.). Isačenko-Schädlich (1970) also work with two (invariant) tone switches: a rising tone switch indicates that a fall is to follow, while a falling tone switch, according to them, is unmarked with regard to the type of switch which may follow. Although the three examples quoted are certainly not comparable in all their assumptions and results, they suggest that the indication of finality vs. non-finality is indeed a discourse function of intonation which may be used for comparison: a speaker is able to indicate by means of intonation which parts of his utterance he considers separable and which final or non-final. The question still unanswered is in what ways the above-mentioned nuclear contours and pause, for instance, interlock in the realisation of those functions.[4]

Gunter (1972) discusses a function of intonation contours which appears to belong to the discourse functions, but is perhaps more directly related to the semantics of the discourse than finality, non-finality and the signalling of separable units. Gunter labels the phenomenon *relevance*, which the following examples may help to clarify (Gunter 1972 : 200 f.):

(1) Context : *Who is in the house?*
Response : *3 JOHN 1* ↓ (Relevance : *Answer to information question*)
(2) Context : *John is in the house.*
Response : *3 JOHN 3* ↑ (Relevance : *Reclamation*)
(3) Context : *John drank Wine.*
Response : *3 TEA 1* ↓ (Relevance : *Contradiction*)

Gunter's hypothesis is that there are four intonation contours of the same gross shape (Falling, Low-Rising, High-Rising, Falling-Rising; cf. Table 1) and that different realisations which keep within these gross shapes keep the relevance between context and response constant whereas a shift from one

[4] Crystal (1969:172–176) contains information on the "co-occurrence of prosodic systems" like pitch-range, tempo, loudness, rhythmicality, but does not mention pause in this connection. Wode (1966:194f.) only sporadically mentions correlations between his "components of intonation" (pause, accent, pitch).

gross shape to the other changes the relevance. The obvious problem is that there may be as many types of relevance as there are contexts and appropriate responses. To determine and perhaps classify contexts and responses is still a task to be solved. In other words, Gunter illustrates a discourse function without analysing its optionality or its conditions of occurrence in any detail. The second type of function may be called the syntactic function of intonation contours.

It is a well-known fact that neither in English nor in German is there a strict one-to-one correspondence between syntactic structure and type of intonation contour (cf. e.g. Halliday 1967 : 19). Only in one or two instances does the correlation between structure and contour approach an exclusive co-occurrence relation, as has been pointed out for the *High Rise*: according to O'Connor-Arnold (1973 : 75) this contour is normally used for questioning; Halliday (1970 : 26) states that the *High Rise* is the neutral contour for yes/no-questions, whereas a fall is the neutral one for all other types of sentence.

However, although no strict correspondence between syntactic structure and intonation contours seems to exist, it has nevertheless been discovered that actually occurring correspondences vary considerably with respect to the frequency of occurrence. Quirk *et al.* (1964 : 680) prove a certain strength of correlation between names and *Rises*, adverbs and *Rise-Falls*, "premodifying adjectives in fall-plus-rise units" and *Falls*, pronoun subjects and the *Fall* of *Fall-plus-Rises*.[5]

Only brief mention is to be made of a third function of intonation nuclei which seems to be linked directly to the information structure of sentences (in Halliday's sense, cf. Halliday 1967 : 33f.; 1967a/68: 200 f.), and which again has been investigated *in extenso* by Quirk *et al.* (1964). It is shown there that except for a small set of particular sentence types, the intonation nucleus coincides considerably more often with nominal than with verbal constituents (Quirk 1964: §19). The two questions of correlation between type of intonation contour and syntactic/lexical material in the utterance, and of position of the nucleus in the utterance, providing the distinction between neutral and emphatic[6], can perhaps be grouped together under the function of information structure, although the links with the syntactic function and the discourse functions are apparent.

The fourth type of function concerns the attitudinal expression of speakers signalled by means of intonation. A large amount of data has been accumulated to illustrate this function of intonation, usually for the purpose of teaching

[5] Cf. also Wode (1966 : 193–199) for a few hints concerning this matter of correspondence, and Crystal (1969 : 253ff.), Halliday (1967 : 24ff., 35ff.).

[6] Cf. Wode's fundamental distinction between normal and emphatic intonation (1966: 212f.).

English (cf. O'Connor-Arnold 1973 : chap. 2; Pike 1945 : chap. 4; Halliday 1970 : chap. 4).

The material adduced to exemplify speakers' attitudes usually suffers from a considerable degree of subjectiveness with which it is collected, and secondly from neglecting to take into account the linguistic and situational context explicitly (cf. however, Stock-Zacharias 1972:19). However, subjectiveness may be overcome by applying the technique of the semantic differential to the attitudinal dimension of intonation as has been demonstrated by Uldall (1964). One might also mention research in progress at University College London, aimed at finding out by means of a similar technique, whether particular intonation contours express particular attitudes by themselves (without any specifiable linguistic context), which is denied by certain writers on intonation. For the time being, the correspondences between context (linguistic and situational), and the attitudinal function of intonation still remain very much in need of clarification.

2.2 *Linguistic and Situational Context.* Although all the textbooks on intonation make use of both types of context, a classification and explicit correlation between context and intonation contour is still missing. Both the independence (4a, b) and dependence (5a, b) of an intonation contour in relation to some linguistic context has frequently been illustrated (e.g. Gunter 1972: 205):

(4) (a) He's at home. (Statement)
(b) He's at home? (Question)
(5) (a) Context : John drank tea
Response : *3 TEA 1* ↓ (Relevance : *Recapitulation*)
(b) Context : John drank tea
Response : *3 WINE 1* ↓ (Relevance : *Contradiction*)

Both types of context in relation to intonation are waiting for further investigation.

2.3 *Phonic Substance.* In principle there does not seem to be any doubt about the phonic substance, i.e. the changing fundamental frequency, of the *Falls, Rises,* etc. which are listed in the description of English or German intonation. But very few studies appear to have occupied themselves with establishing the exact minimal frequency ranges that would qualify as a particular intonation contour. Kuhlmann (1952:200 f.) points out that the pitch movement of German sentences occurs within a larger range of semitones than of English ones. Isačenko-Schädlich, on the other hand, experimented with a pitch difference of one semitone and found this interval sufficient to characterise typical German intonation contours (1970 : 57 f.). (But although the interval of one semitone may be sufficient to identify a few intonation contours, it seems that more phonic details have to be included in order

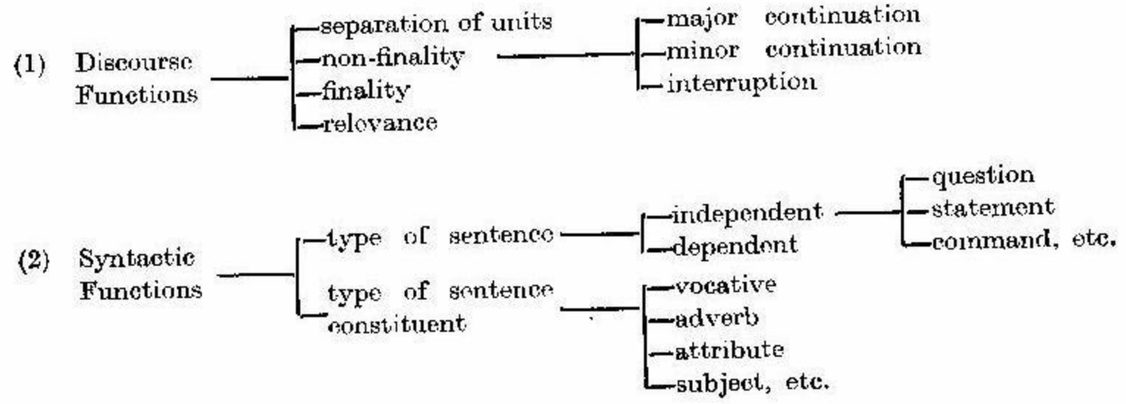
to make speech acceptable to native speakers). On the whole it would appear to be necessary to determine not only auditively, but also instrumentally or experimentally the relative frequency limits of the various contours. This might also throw some light on the reasons for the differing selections of contours by different analysts, as exemplified in Table 1, and in particular on the significance of the various "phonetic" details which Halliday presents in the symbolisation of his primary (nuclear) contour (2) (falling-rising, *pointed*) and contours (4) and (5) (specified as *rounded*). Also the whole gamut of paralinguistic features (cf. Crystal-Quirk 1964, Crystal 1969:132 ff.) seems to belong to this area of possible contrasts between languages.

2.4 *Frequency of Occurrence.* Pike (1945) contains a statistical analysis, on the basis of a few text samples read by himself and his wife, of the intonation contours which constitute his system. The contours which are listed in Table 1 occur most frequently among those of their type, i.e. °2–4 represents 19.8% of the contours falling to Pike's level 4, °2–3 occurs in 17.1% of all contours falling to level 3, °3–2 covers 6.4% of the contours rising to level 2, and °2–4–3 comprises 10.2% of all fall-rises (1945:157 f.). Pike's analysis surely is a step in the right direction, but since his material (passages from Sherlock Holmes) can hardly be called representative, his results have to be considered as preliminary. An analysis of the frequency of occurrence of specified nuclear tones and a correlation of the distributional pattern of contours with types of spoken texts is still a task to be undertaken.

The following Table 2 presents a schematic summary of those areas of intonation which we explained above, and perhaps contains all the general areas of intonation which may be the object of contrastive analysis. It should be kept in mind, however, that any of the possible interrelationships between intonation contours and stress (intensity), loudness (amplitude), pause, etc. are omitted here, as well as further possible subdivisions towards the right of the Table.

Table 2

Areas for Comparison



(3) Information-structural Functions
- placement of nucleus → neutral / emphatic
- correlation with syntactic/lexical material → nominal / verbal, etc.

(4) Attitudinal Functions
- neutral
- involved, etc.

(5) Context
- linguistic
- situational

(6) Phonic Substance
- frequency range of contours
- shape of contours
- paralinguistic features, etc.

(7) Frequency of Occurrence
- type of text A → type of contour a / type of contour b
- type of text B → type of contour a / type of contour b

3.0 *Contrastive Work on Intonation.* On the whole very little detailed information is as yet available on the intonation contrasts between English and German. If one considers the various general areas of comparison established in Table 2, it has to be admitted that, according to our knowledge, no contrastive analysis is yet possible of the syntactic function (related to sentence constituents), information-structural function, attitudinal function, context, and frequency of occurrence, because there is not sufficient information available either for German or for English, or both.

As regards *discourse functions*, Delattre *et al.* (1965) demonstrate the following distribution of contour types with respect to *finality/non-finality*:

Finality
- in German : Falling contour
- in English : Falling contour

Non-Finality
- in German : Rising contour
- in English : Falling contour

In English the pitch range of the fall differs for the two functions, according to Delattre *et al.* (1965), namely lower for finality than for non-finality.

The phenomenon of *relevance* can be illustrated for both languages:

John drank 'wine. — 'Tea! (Contradiction)
John is at 'home. — At 'home? (Reclamation)

Das ist 'Wein — 'Wasser! (Contradiction)
Der Wein ist 'gut — 'Gut? (Reclamation)

But it is still impossible to formulate any generalisations for the languages themselves or their comparison.

The distinction between *major* and *minor continuation* is said to be clearer in German than in English (Delattre *et al.* 1965:154), but this feature seems to be in need of further analysis, especially in regard to its correlation with certain intonation contours and the concept of juncture and pause.

Interruption, too, is at least partially identical in both English and German. Isačenko-Schädlich (1970:38 f.) show how a rising tone-switch is interpreted as interruption if it occurs before the ictus (stressed syllable), while a question or doubt is expressed by a rise after the ictus. They do not mention one essential feature, however, which has to be present for the signalling of interruption, namely that the contour has to remain level after the rise. Compare the following examples for English and German:

The 'butter
Das 'Wasser (interruption)

The 'butter
Das 'Wasser (questioning, doubt)

The text-book example for *syntactic functions* of intonation contours, the differentiation of statements from questions holds true for both languages we are concerned with:

He's at 'home. — He's at 'home?
Er ist zu 'Hause. — Er ist zu 'Hause?

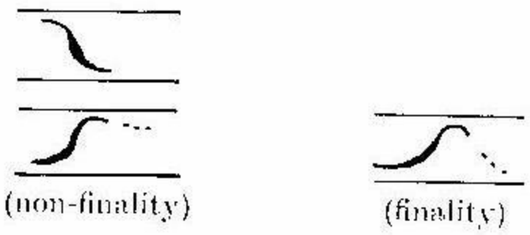
But apart from such very general, and perhaps very superficial correspondences, little material seems to exist on correlations between constituent type and intonation contour for German (cf. Wode 1966:193–199) which could be compared with the results of Quirk *et al.* (1964). Neither is there any material on dependent clauses.

As regards the area of *phonic substance*, it has to be stated again that much more information is available on English, as was pointed out above (§ 2.3), than on German. Some interesting comparisons are provided by Delattre *et al.* (1965), who confirm the rule of thumb that the general form of English intonation is wave-like whereas German can be compared to the blade of a saw (Delattre *et al* 1965:148; cf. Scherer-Wollmann 1972:256 f.) because of its pitch drops. They use the picture of a bird in order to illustrate the basic differences in the details of the intonation contours between English and German: for English, the "bird" is looking to the left with the area of

greatest intensity following the highest pitch (the "head"): for German the "bird" is looking to the right, with the greatest area of intensity preceding the highest pitch. In addition to these differences Delattre *et al.* point out another detail for German: the "beak" of the "bird" points upwards or stays level for non-finality but points downwards for finality. Compare the following diagrams:

English:

German:



(non-finality) (finality)

4.0 *Summary.* Our assumption is that the general areas for comparison contained in Table 2 present an exhaustive list of such areas and that they all play a role in the functioning of both English and German intonation. For most of these areas contrastive analysis or any analysis at all has not even begun. We hope that the contrastive studies which exist can be placed within the above schema, as for instance Schubiger's study (1965) can be allocated to the attitudinal functions, and that our remarks might provide a useful outline for further research.

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