# MODERN BRITISH LINGUISTICS: A STUDY OF ITS THEORETICAL AND SUBSTANTIVE CONTRIBUTIONS

by

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S.B., Massachusetts Institute of Technology

(1961)

SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE

DEGREE OF DOCTOR OF

PHILOSOPHY

at the

MASSACHUSETTS INSTITUTE OF

TECHNOLOGY

June, 1964

Signature of Author.....
Department of Modern Languages, May 14, 1964

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Modern British Linguistics: A Study of its Theoretical and Substantive Contributions

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The single most important development in contemporary British linguistics has been the formation of a particular school of linguistics whose concerns have been mostly in phonology and semantics. The work of the one man who is responsible for its development, John Rupert Firth, is evaluated in Chapters III and IV. His semantic notions largely derive from those of the anthropologist Bronislaw Malinowski, whose linguistic views are studied in Chapter I. It is shown that Malinowski's earliest views on semantics are quite in keeping with nineteenth century thinking, including his concern with the problem of the relationship between language and culture. Concerning the latter, it is shown that Malinowski viewed it as a psychological reality. In the early 1920's, however, Malinowski became convinced that the meaning of sentences is not given by the mind in any way, but can be completely determined from considerations of the context of ongoing human activity, or context of situation, at the time of their utterance. This term was also used by the Egyptologist Sir Alan Gardiner, from whom, it seems likely, Malinowski obtained the concept. This concept, however, was used in quite a different way by Gardiner, as is shown in Chapter II. Gardiner's views were basically Saussurean, although he went beyond Saussure at a number of points, especially in universal grammar, where it is shown that Gardiner's views are essentially those of the eighteenth century. In the 1930's, Malinowski broadened the notion 'context of situation' to include the entire context of culture (no longer viewed as a psychological reality), and thus emptied it of any significance for semantics. It is this latest view of meaning by context of situation which was adopted by Firth.

Firth's phonological ideas, on the other hand, originated in Daniel Jones, but by 1935, he was expressing the same views essentially as W.F. Twaddell. In the late 1940's, Firth developed the notion of prosodic analysis, which as is shown is simply a notational variant of Z.S. Harris's long component analysis first enunciated in 1944.

In Chapter V, a number of phonological studies published by Firth's associates are examined. It is precisely where the restraints imposed by Firth's phonological theory are broken that these studies are of significant interest.

Thesis supervisor: Noam Chomsky
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## BIOGRAPHICAL STATEMENT

The author was born in Paterson, New Jersey on June 7, 1939. He entered the Massachusetts Institute of Technology in September, 1957 upon graduation from Hawthorne High School, Hawthorne, New Jersey. He graduated from M.I.T. in June, 1961 with the degree of Bachelor of Science in Humanities and Science. His undergraduate thesis was entitled Structural descriptions for sentences generated by non-self-embedding constituent structure grammars. He began graduate study in the Department of Modern Languages at M.I.T. in September, 1961, and has held at various times a part-time Research Assistantship. During the summer of 1962, he did linguistic field work on the Mundari language at Ranchi (Bihar), India under the auspices of the South Asian Languages Program of the University of Chicago. During the summer of 1963 he taught phonetics at summer schools in Toronto, Ontario and Madison, New Jersey. During the academic year 1963-1964, he taught courses entitled Modern Linguistic Theories and The Grammar of English at the Hartford Seminary Foundation, Hartford, Connecticut.

He presented a paper entitled 'Stress and related matters in Mundari' at the summer meeting of the Linguistic Society of America, July 1963, at Seattle, and a paper entitled 'A generative phonological account of

Classical Greek apophony' at the winter meeting of the Linguistic Society of America, December 1963, at Chicago. His review of Studies in linguistic analysis, special volume of the Philological Society of Great Britain (Oxford, 1957), will appear in a forthcoming issue of Language.

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A school of linguistics having a very definite character and theoretical position has developed in Great Britain over the past twenty years, and associated with its development has been a flourishing of linguistics as an academic subject in universities throughout England, Scotland and Wales. This school is usually linked with the name of one man: John Rupert Firth. The origin of the school's development can be conveniently dated as the time of Firth's accession to the Chair of General Linguistics at the University of London in 1944, the year in which the chair was in fact created. Firth held this position until his retirement in 1956, and his death in 1960, in the words of R.H. Robins, marked "the end of an era in the study of linguistics in Great Britain".[1]

It is with the character of this linguistic school that this study is concerned. For convenience, we shall follow standard non-British usage in calling it the "London" school of linguistics.[2] It should be clearly understood that it is not the case that the London school has ever thoroughly dominated the British linguistic scene. Throughout the recent past, Daniel Jones has continued to exercise enormous influence over British linguistics, and in the London University School of Oriental and

African Studies, where Firth's influence was strongest, there have always been, and there certainly are today, a considerable number of influential linguists, for example Jack Berry, Malcolm Guthrie, and many others, whose published work shows little or no trace of the influence of the London school.

A systematic study of the linguistic theory propounded by Firth, and implemented in the descriptive analyses and further discussions by his colleagues and students has long been needed. The reasons for this are not hard to find. First, it is the case that all of Firth's published writings on linguistic theory, and for that matter, all of his descriptive work, are notoriously obscure and programmatic. This state of affairs has been readily admitted by his followers. Thus Robins described Firth's publications as "all readable and stimulating, but programmatic rather than definitive, often allusive rather than explicit, and sometimes infuriatingly obscure on points obviously vital to the theory he was expounding."[3] Second, no one else has ever successfully presented an explicit formulation of the theories of the London school, and the historical and theoretical connections between it and American and Continental linguistics. Third, the total history of the development of the London school,

has never been attempted, except in outline.[4] The acknowledged source for Firth's semantic ideas is the anthropologist Bronislaw Malinowski, but a thorough treatment of the linguistic notions held by Malinowski has never been undertaken in detail. Upon close examination of Malinowski's writings, we find that there was a steady evolution of his linguistic outlook over the fifteen years (1920-1935) which span his major writings on linguistic matters.[5] It is the later outlook which formed the basis of Firth's semantic theory.

Our inquiry into the origins of the London school does not go back in time beyond Malinowski, and we shall not investigate in detail the sources for Malinowski's own theoretical orientation, a task which has been at least already partially undertaken.[6] We shall, however, discuss some of the sources for his linguistic notions. Malinowski was particularly indebted to the renowned Egyptologist Sir Alan Gardiner for certain crucial ideas, notably that of "context of situation".[7] The concept was, however, taken into his work, and from him into Firth's work, in a different sense from which Gardiner intended it. It will be one of the objectives of this study to point out the curious position which Gardiner holds in the development of the notions of the London school.

The linguistic concerns of the London school have been almost exclusively restricted to semantics and phonology, to the nearly total exclusion of syntax. What little has been said on syntax has been concerned primarily with the development and elaboration of terminology. Halliday's 'Categories of a theory of grammar'[8] is the most thorough discussion of syntax within the school to date. Its contents have already been critically examined by Postal[9] and we shall have little more to say concerning it here. Therefore this study will focus primarily on the London school approach to semantics and phonology.

The first two chapters of this study deal with the work of Malinowski and Gardiner respectively. While it is in one sense correct to view both of them as the precursors of the London school, it is by no means correct to view the London school as having developed from them. On the contrary, it may be said that the positions of the early Malinowski and of Gardiner are more developed than that of the London school. The work of both Malinowski and Gardiner may quite properly be studied independently of their connection with the London school, as an expression of a richer theoretical position than we find in Firth.

The third chapter deals with the "early Firth",

that is, his work up to the Second World War. The fourth chapter is concerned with Firth's work during the period in which he held the chair in the University of London, and the fifth chapter is devoted to a study of particular descriptive work, especially phonological descriptions, undertaken by Firth's students and colleagues of the London school during the period from 1949 to 1962.

NOTES

1. 'Obituary of John Rupert Firth' Language 37 (1961), p. 191.

2. The label is used, for example, by N. Chomsky, 'The logical basis of linguistic theory' in Preprints, IX International Congress of Linguists (Cambridge, 1962), p. 565. It is not, however, in popular usage among the followers of Firth themselves.

3. Op. cit., p. 198.

4. The best recent treatment is R.H. Robins, 'General linguistics in Great Britain, 1930-1960' in C. Mohrmann, F. Norman and A. Sommerfelt (eds.), Trends in modern linguistics (Utrecht, 1963), pp. 11-37. Firth's own discussion of his debt to Malinowski may be found in his 'Ethnographic analysis and language with reference to Malinowski's views' in Raymond Firth (ed.), Man and culture: an evaluation of the work of Bronislav Malinowski (London, 1957), pp. 93-118.

5. The beginning and the end of this period are marked by his 'Classificatory particles in the language of Kiriwina' Bulletin of the School of Oriental Studies 1, part 4 (1920), pp. 33-78, and Coral gardens and their magic, Volume II (New York, 1935) respectively.

6. E.R. Leach, 'The epistemological background to Malinowski's empiricism' in Man and culture, op. cit., pp. 119-137.

7. Cf. Malinowski's remarks in his 'The problem of meaning in primitive languages' Supplement I to C.K. Ogden and I.A. Richards, The meaning of meaning (fifth ed.) (New York, 1938 [1923]), p. 298.

8. Word 17 (1961), pp. 241-292.

9. Constituent structure: a study of contemporary models of syntactic description = Publication 30 of the Indiana University Research Center in Anthropology, Folklore, and Linguistics (Bloomington, 1964), pp. 97-117.

# CHAPTER I

1. Malinowski's only published linguistic description was his paper 'Classificatory particles in the language of Kiriwina'[1], which appeared in 1920, two years after the completion of his ethnographic field work in the Trobriand Islands. In the paper, he expressed the hope that he would someday be able to write a grammar of Kiriwinian, but the hope was never fulfilled.[2] The bulk of the description in the paper concerns itself with the grammatical character of a class of particles which are attached to numerals, adjectives and demonstratives when they occur with nouns, or in certain cases, when these words stand alone.

Throughout the paper, Malinowski asserted that there is a need for the development of a theory of semantics which will enable researchers in linguistics to probe more deeply into language structure; one which will serve also as a basis for explaining particular grammatical facts about language, both universal and particular. He argued that such a semantic theory would have to be closely connected with ethnographic theory, since an understanding of what people mean by what they say depends in part upon what their culture is. His view of the connection between language

and culture seems to have been in accord with nineteenth century thinking. He said that he was familiar with, for example, the work of Humboldt on the Kawi language of Java, and his only criticism of Humboldt's work was that since he did not do personal field work on the language and culture, but based his study solely on secondary sources, he probably did not fully grasp the relationship between the Kawi language and culture.[3]

One of the reasons for the need of a semantic theory of language, Malinowski argued, is simply that without it, a satisfactory grammatical analysis of a language is not possible. Formal criteria are not enough to provide a basis for grammatical analysis, or even for classifying words into parts of speech. A case in point, he believed, was the problem of classifying Kiriwinian words into parts of speech:

> "...in dealing with the grammatical character of the various formatives, we had to keep their meaning constantly before us. In trying to prove that an expression should be classed as a noun or adverb or adjective or a 'nominal demonstrative', we use semantic and not formal definitions."[4]

The actual problem, the solution of which showed to Malinowski's satisfaction that simple formal analysis fails to provide a way to give an adequate grammatical description of the language, is of some interest. He pointed out that there is, at first glance, a sub-class of adjectives which, unlike other adjectives, fails to

take any classifying particles. But, he asked, how does one know on purely formal grounds that this class is in fact a sub-class of adjectives? If we establish as a formal criterion of membership in the adjectival class that a word take a classifying particle when it occurs with a noun, and that otherwise it is a member of some other class, say adverbial (and thus obtain a neat formal cleavage between modifier words which occur with classifiers and those which do not), then the grammatically correct analysis is ruled out.

Malinowski meant by a "formal definition" of a grammatical category a definition of it in terms of diagnostic linguistic environments in which members of the category are allowed to occur. His objection to using such formally defined categories was simply that one cannot distinguish arbitrary definitions from those which possess some sort of deeper significance, that is those which "correspond to real distinctions in human thinking and human Weltanschauung."[5] He pointed out further, that having recognized this particular class of words which do not occur with classifiers as a sub-class of adjectives, these words can be recognized as such again in more complicated expressions, where other formally based definitions would not enable one to

do so, without modifying the formal definition in some way.[6] Malinowski gave, then, a twofold justification for the particular solution to the grammatical problem posed. First, it preserved the possibility of providing a definition of the categories (adjective, adverb, noun, etc.) which correspond to distinctions in human thinking and outlook, and second, if left one free to analyze correctly the constituents of complicated constructions without forcing one to redefine the categories formally.

The first task which Malinowski proposed for a semantic theory was that it must provide a basis for the definition of grammatical categories, particularly the universal ones. Malinowski's understanding of universal grammar was, roughly speaking, traditional school grammar; consequently he saw the need for a universal semantic definition of the traditional parts of speech, their "modifications" like cases and tenses, and certain grammatical relations like subject and predicate. He expressed agreement with Sir Alan Gardiner's contention that the notions subject and predicate were not at all understood in contemporary philology.[7] For the purposes of the paper, he accepted"simple semantic criteria in using the terms'noun' and 'nominal' to denote words which stand for an individually considered and defined thing, the term 'adjective' for words denoting attributes

ascribed to a thing, and so on."[8] He felt that he had not gone nearly far enough; he criticized himself for making "an amateurish, extemporized use of grammatical terms",[9] but he felt that he had successfully avoided the pitfall of simply borrowing wholescale the "rigid grammatical concepts ... of Indo-European linguistics ... which lead to wrong distinctions, to tearing asunder of natural grouping, to false perspective."[10]

It should be remarked, however, that in his actual classification of Kiriwinian words into parts of speech, he went beyond the restraints set by his semantic definitions of them. In effect, once he had found certain formal characteristics of the classes of words fitting the semantic classification, he included in the same class words which failed to meet the semantic characterization, but which possessed similar formal characteristics. Thus, for example, he classed certain words which had abstract significance in the language as nouns because of their formal similarity to words whose significance fitted the universal semantic definition for "noun".

Malinowski believed very strongly that once someone developed a semantic theory adequate to the tasks he set for it, it would play a significant role in

guiding linguists in their investigations of the structure of languages. He expressed the heuristic value of such a theory in the following terms:

"It must be remembered first that a scientific theory gives us, besides a body of rules, also definite mental habits ... Thus it was necessary first clearly to state the range of the classificatory particles, their main function and meaning. As soon as such a striking phenomenon was observed in the numerals, the theoretical interest and the impulse toward completeness would make their discovery inevitable in the demonstratives and adjectives as well. Again, the constructive desire for completeness imposes the principle to search for all the classifiers and to present them in an exhaustive list. Once tabulated, the differences in their nature -- their meaning, their grammatical function, and their degree of obsoleteness -- became patent ... Further research is thus stimulated, and this leads to the discovery of new facts. And so on; theoretical analysis compels us to see gaps in the facts and to formulate problems -- this elucidates new facts, which must be submitted to theoretical analysis again, and so on, until the limit is reached, where further details would be too vague and too insignificant for observation."[11]

It is worth pointing out that Malinowski saw the value of a theory about language only for the analyst coming in from the outside; it did not occur to him that the theory might have value also in explaining the phenomenon of language acquisition by native children. This is not to say that Malinowski never considered the problem of language acquisition by children. In subsequent publications, in fact, he devoted considerable attention to this question.

In addition to providing the basis for the definitions of the categories and relations of universal

grammar, Malinowski posed as another goal for semantic theory the ability to account for the particular grammatical facts of particular languages in terms of the special semantic circumstances provided by the cultural environment in which the language is spoken, and for which it may be said to be adapted. Thus,

"But the analysis of meaning again led us often to ethnographic descriptions. When defining the meaning and function of several of the formatives, we had to make excursions into ethnography, describe customs, and state social conditions."[12]

These "excursions into ethnography" occur at half a dozen or so different points in the description, each one occurring in connection with a discussion of particular classificatory particles. Each one typically is meant to explain why particular particles exist and have the character that they do in the language. Thus, in describing the particles used when counting and modifying nouns designating bunches of fruit, especially betel-nut clusters, he stated:

"There is no doubt that bunches of fruit must be an important class of objects to a tribe, where gardening is one of the main economic pursuits, and one in which the natives take an extreme interest and pride. But, speaking more specially of the expression for betel-nut bunches, fruit clusters are also important from another point of view. Gifts and payments and tributes are a very prominent feature of the social organization and public life in Kiriwina... In these, undivided bunches of betel-nut play a specially prominent part ..."[13]

Malinowski's argument is simply that the cultural importance of bunches of fruit in Kiriwina accounts for the existence of a special classificatory particle for each of several nouns designating bunches of fruit in the language. Similarly, there is a classificatory particle used only with a noun designating batches of fish, since batches of fish play an important role in the economic life of the island. After giving a brief description of a particular ceremony involving the exchanges of bunches of fish for yams, Malinowski argued:

"This somewhat lengthy description of the wasi (fish and yam exchange) has been given to show how narrow and definite is the application of the formative OYLA- and also to show how necessary it is to give some ethnographic information if grammatical relations are to be fully understood."[14]

These citations show the typical "explanation after the fact" character of Malinowski's use of these pieces of ethnographic information. An even more striking example is his discussion of the classification of the noun meaning 'basket of yams'. This noun, apparently, is the only one in the entire language which when modified by a numeral, demonstrative or adjective appears without any classificatory particle. When and only when one counts baskets of yams are the bare numeral stems used in the Kiriwinian language. To account for this seemingly bizarre fact, Malinowski appealed to the social significance

of baskets of yam in Kiriwina:

"It must be realized, however, that the counting of baskets of yams in Kiriwina is counting par excellence ... the counting of baskets of yams is undoubtedly the most important occasion on which numbers have to be recorded in Kiriwina."[15]

All of Malinowski's "explanations" of grammatical fact on the basis of cultural fact are similarly anecdotal in nature. On the basis of his attempts to provide such explanations, therefore, no theoretical assertions of the type in which cultural facts in general are said to explain the existence and nature of particular grammatical rules can be made. His examples are, however, sufficiently suggestive to indicate that it may not be totally impossible eventually to arrive at such theoretical assertions.

Malinowski's views about the relationships between the semantic and grammatical description of a language, and the description of the culture in which it is spoken are significantly different here from the views which he later came to express. In this paper, Malinowski is contending that the grammatical and semantic description of a language forms an autonomous entity within a broader framework -- the complete ethnological description of the culture. The strictly ethnographic part of the description supplies a partial explanation for certain grammatical and semantic features

of the language. Universal grammar contains universal grammatical categories and relations defined in terms of universal semantic categories. The universal semantic categories are themselves elements of a universal ethnological theory, which is constructed out of considerations pertaining to man's nature, and the nature of his environment.

2. In 1921, one year after the publication of 'Classificatory particles', Malinowski completed his first major ethnological treatise concerning the Trobriand Islands, Argonauts of the Western Pacific,[16] and it was published the following year. Malinowski had little to say in it directly concerning linguistic theory or description, but in it he presented a fairly detailed sketch of ethnographic theory in which semantic theory had a part. There are certain features of this sketch which indicate, by their sharp contrast with the position which he was to hold later, the degree to which his theoretical perspective changed over the years.

In his introductory chapter to this book, Malinowski framed his ethnographic theory in terms of three major principles of ethnographic methodology. The

principles correspond to the three aspects of social life which Malinowski believed that the ethnographer must, fit together into a unified description of a given society. The ethnographer must (i) provide an account of the organization of the society, an anatomy of its culture. This amounts to a codification of the superficially non-observable aspects of the social environment in which each member of the society finds himself. The ethnographer must fill in this framework with (ii) a characterization of the "imponderabilia of actual life", or the "typical behaviour" of the people of the society.[17] This amounts to a description of the directly observable aspects of the social environment, including how the people actually behave, how they express their feelings, motives, etc. Then (iii) he must collect characteristic narratives from the society, and especially typical comments which the people make concerning their own social structure. These narratives Malinowski called the "documents of native mentality", and they provide the evidence for knowing what is in the minds of the natives concerning their own society. Malinowski summarized these three aspects of social life as follows:

"... in every act of tribal life, there is, first, the routine prescribed by custom and tradition, then there is the manner in which it is carried out, and lastly there is the commentary to it, contained in the natives' mind."[18]

Malinowski stressed that the structure of a society cannot be directly observed either by the ethnographer or the native, but that to the native it is a psychological reality. As late as 1926, he wrote:

"The honourable citizen is bound to carry out his duties, though his submission is not due to any instinct or intuitive impulse or mysterious 'group-sentiment', but to the detailed and elaborate working of a system, in which every act has its own place and must be performed without fail. Though no native, however intelligent, can formulate this state of affairs in a general abstract manner, or present it as a sociological theory, yet every one is well aware of its existence and in each concrete case he can foresee the consequences."[19]

In this same work, Malinowski suggested several universals of social structure, and at the same time stressed their very abstract nature. One of these principles he called "symmetry of structure", which may manifest itself in a number of ways in particular cultures, for example in the way in which a society is organized into moieties. Malinowski criticized anthropologists like Rivers for failing to see that superficial social structure is the result of its "inner" structure:

"The old theories of tribal dichotomy, the discussions about the 'origins' of 'phratries' or 'moieties' and of the duality in tribal subdivisions, never entered into the inner or differential foundations of the external phenomenon of halving. The recent treatment of the 'dual organization' by the late Dr. Rivers and his school suffers badly from the defect of looking for recondite causes instead of analysing the phenomenon itself. The dual principle is neither the result of 'fusion' nor 'splitting' nor of any other sociological cataclysm. It is the integral result of the inner

symmetry of all social transactions, of the reciprocity of services, without which no primitive community could exist. A dual organization may appear clearly in the division of a tribe into two 'moieties' or be almost completely obliterated -- but I venture to foretell that wherever careful inquiry be made, symmetry of structure will be found in every savage society, as the indispensable basis of reciprocal obligations."[20]

We do no injustice to Malinowski to say that he maintained at this time that social structure may be stated as a system of rules acoording to which a given society ideally operates. The way in which natives actually obey or fail to obey the system must, of course, also be considered by the ethnographer, but this overt behavior on the natives' part is part of the "imponderabilia". A person's behavior in society cannot be understood by the ethnographer, Malinowski insisted, until he has made a very full observational record of the actual behavior of many people, and has made some attempt to enter into native life himself. Concerning his own attempts to enter into Trobriand life, Malinowski testified:

"Out of such plunges into the life of the natives ... I have carried away a distinct feeling that their behaviour, their manner of being ... became more transparent and easily understandable than it had ever been before."[21]

What Malinowski was saying, of course, is that by entering native life, the ethnographer himself begins to internalize a knowledge of the rules of the society in

his mind which is, for all purposes, the same as that of the natives. He is able to "understand" the behavior of the natives for the simple reason that, in terms of his own internalized knowledge, he would behave the same way under the same circumstances. Concerning the question of how this knowledge arises in the minds of the natives and of the ethnographer, Malinowski asserted simply that it develops spontaneously from living in the social milieu:

> "First of all, it has to be laid down that we have to study here stereotyped manners of thinking and feeling. As sociologists, we are not interested in what A or B may feel qua individuals, in the accidental course of their own personal experiences -- we are interested only in what they feel or think qua members of a given community. Now in this capacity, their mental states receive a certain stamp, become stereotyped by the institutions in which they live, by the influence of tradition and folk-lore, by the very vehicle of thought, that is by language. The social and cultural environment forces them to think and feel in a definite manner."[22]

It would have constituted a very simple step for Malinowski to have identified this internalized knowledge of society which every native carries with him in his head with the objective of ethnological research, but he apparently never made this step. As we can see from his tripartite schema for stating an ethnographic description, Malinowski left no room for stating the natives' internal knowledge of their society, but only for comments which the natives could make explicit concerning

their internal knowledge. This native commentary he called nothing more than "an ethnic peculiarity of [a] given society."[23] In his later work, this notion of a system of internalized knowledge about society, of systems of beliefs, etc. came to play a much less prominent role, although it never completely disappeared.

Malinowski had little to say about language as such in Argonauts of the Western Pacific, and what he did have to say is contained in Chapter XVIII, 'The power of words in magic -- some linguistic data'. In it, he remarked that the language of magical texts is not like ordinary language. Magical style, unlike ordinary narrative style, "does not serve to communicate ideas from one person to another; it does not purport to contain a consecutive, consistent meaning. It is an instrument serving special purposes, intended for the exercise of man's specific power over things, and its meaning, giving this word a wider sense, can be understood only in correlation to this aim."[24] The important thing to realize in connection with this statement is that Malinowski's view of meaning in the ordinary sense is that it is arrived at, in sentences of ordinary language, by the concatenation of the meanings of the elements of the sentences in a consistent way.

Malinowski held the traditional view that the order of words in sentences reflects the order of ideas in the mind, as can be seen from the remark immediately following the one just quoted:

"It [the meaning of magical texts] will not be therefore a meaning of logically or topically concatenated ideas, but of expressions fitting into one another and into the whole, according to what could be called a magical order of thinking, or perhaps more correctly, a magical order of expressing, of launching words towards their aim."[25]

In view of what Malinowski later claimed to be the nature of language, it is important to realize that in Argonauts of the Western Pacific, he held a very traditional notion about the meaning of discourse, and that he distinctly viewed the semantic properties of magical texts to be exceptional. Even so, Malinowski seemed to believe that the meaning of magical texts could be arrived at by means of rules of some sort, but whatever these rules may be, they are different from the rules governing the meaning of ordinary discourse. Later in the chapter, Malinowski in fact discussed in some detail the linguistic nature of magical texts, and makes several observations concerning how one can come to understand them.[26]

3. Malinowski's article 'The problem of meaning in primitive languages' appeared just one year after the publication of Argonauts of the Western Pacific; yet the

linguistic views expressed in it are radically different. The changes in his outlook may be summarized as follows. First, he exactly reversed his assertion in Argonauts of the Western Pacific that the language of magic is a special kind of language use. In the article, he considered, rather, that the language of magic is an exemplification of the basic and primary use of language, and that the use of language to communicate ideas is special or derivative. Language in its primary function is, in his words, "to be regarded as a mode of action, rather than as a countersign of thought."[27] Viewed as a "mode of action" an utterance receives its meaning not from a logical concatenation of the ideas expressed by the words comprising it, but from its relation to the situational context in which it occurs. Thus,

> "But when we pass from a modern civilized language ... to a primitive tongue, never used in writing, where all the material lives only in winged words, passing from man to man -- there it should be clear at once that the conception of meaning as contained in an utterance is false and futile ... utterances and situation are bound up inextricably with each other and the context of situation is indispensable for the understanding of the words. Exactly as in the reality of spoken or written languages, a word without linguistic context is a mere figment and stands for nothing by itself, so in the reality of a spoken living tongue, the utterance has no meaning except in the context of situation."[28]

This was not to say that language could not be used to communicate thought, but that such use was derivative:

"The manner in which I am using it [language] now, in writing these words, the manner in which the author of a book, or a papyrus or a hewn inscription has to use it, is a very far-fetched and derivative function of language."[29]

This statement represents a radical departure from the position Malinowski gave in Argonauts of the Western Pacific, but it may be said to have been anticipated there. Already in the book, Malinowski expressed serious concern over the problem of translation, especially the problem posed by the difficulty of translating magical texts. He found that he was unable to translate them meaningfully into English, using ordinary English words and relying on English patterns of meaning composition. To account for this discrepancy, Malinowski appealed to the notion that the Trobrianders had a "magical way of thinking or expressing" which correlated with their objectives in using magic. But there is no direct evidence for believing that the Trobrianders are thinking in some radically different way from usual at the time of their performing magic. Consequantly, it would seem that Malinowski concluded that to account for the discrepancy, it would be sufficient to observe exactly what the natives were doing while they were uttering their magical texts, and to say that the meaning of these texts is precisely their correlation with this activity.

In this case, the activity defines magical "contexts of situation". To obtain the meaning of utterances when expressed in mundane situations, Malinowski asserted that one need merely correlate the utterances with whatever human activity happens to be going on at the time. The language used in connection with typical daily human activities: fishing, hunting, cultivating, buying and selling, eating, greeting, instructing a child, gossiping around a campfire -- in all these cases, he argued, utterances derive their meaning from the context of concurrent human activity.

Malinowski's argument in 'The problem of meaning in primitive languages' is that the use of language which makes semantic interpretations of utterances in that language by considerations of contexts of situation possible is the primary use of language. There were two aspects to Malinowski's argument: (i) in primitive society, where there is no written language, there is no other use of language possible, and (ii) everyone in all societies learns language in this way. Concerning the second part of Malinowski's argument, we can cite the following as a typical remark concerning his view of language learning:

"The child acts by sound at this stage [in his life], and acts in a manner which is both adapted to the outer situation, to the child's mental state and which is also intelligible to the surrounding adults. Thus the significance of sound, the meaning of an utterance is here identical with the active response to surroundings and with the natural expression of emotions."[30]

In fact, Malinowski argued, the first set of contexts of situation which the child experiences are magical ones, where by magical contexts of situation, he meant those in which the individual imagines that a word or expression has some influence directly on the situation:

"The infantile experience must leave on the child's mind the deep impression that a name has the power over the person or thing which it signifies. We find thus that an arrangement biologically essential to the human race makes the early articulated words sent forth by children produce the very effect which these words mean ... This of course is not the statement of a child's conscious views about language, but it is the attitude implied in the child's behaviour."[31]

Written language, as we have seen, is the only kind of language for which a semantic interpretation cannot be supplied by a context of human activity, since there is none to correlate with it. Thus Malinowski committed himself to a position which distinguishes between men who can read and write and men who cannot -- only the former have the capacity to express statements which have meaning independent of the context of situation in which he finds himself. As we shall see, Malinowski later renounced this position, in favor of one which maintains that no man has this capacity.

Let us now examine the arguments which Malinowski put forth in support of his contention that the meaning of utterances is supplied by their correlation with concurrent human activity. He opened his argument by presenting a text in the Kiriwinian language together with a word-for-word translation of it into English, and observing that the translation makes very little sense:

"In analysing it [the text], we shall see quite plainly how helpless one is in attempting to open up the meaning of a statement by mere linguistic means; and we shall be able to realize what sort of additional knowledge, besides verbal equivalence, is necessary in order to make the utterance significant."[32]

One is immediately struck by Malinowski's tacit identification of the "linguistic means" at one's disposal for determining the meaning of the Kiriwinian text with the verbatim English translation of it. Unfortunately, Malinowski built the rest of his argument on the assumption of the validity of this identification; the next step in the argument is to show that the ethnographer, in order to determine what was really meant by the utterance, must look beyond the text itself to the human activity which was going on at the time the text was uttered. But, of course, the linguistic means at the ethnographer's disposal are not at all exhausted once he has found the verbatim translation of the text into English; rather he has

just begun to use them. Malinowski's argument, it will be noted, betrays a curious ethnocentricity on his part. Malinowski was not at all concerned here to account for how the natives might understand the text in question; rather he was asking how an outsider could arrive at an understanding of it.

Malinowski followed this part of his argument up with a discussion of the meaning of a particular Trobriand sentence boge laymayse. Malinowski observed that he had particular difficulty in learning the meaning of this sentence, but finally was able to conclude after some trial and error that it "means to a native 'they have already been moving hither'."[33] In this discussion, Malinowski actually showed two things: (i) that it may be difficult for an outsider such as himself to learn the meaning of sentences in the native language, and (ii) that it is nevertheless possible for an outsider to do so, and certainly possible for a native to do so, independently of the contexts in which it might occur. Furthermore, he actually showed how it might be possible to characterize the meaning of the sentence just quoted in terms of the meanings of the lexical items comprising it, as follows:

"In the Trobriand language ... there is an adverbial particle boge, which, put before a modified verb, gives it, in a somewhat vague manner, the meaning of either a

past or of a definite happening. The verb is moreover modified by a change in the prefixed personal pronoun. Thus the root ma (come, move hither) if used with the prefixed pronoun of the third singular i -- has the form ima and means (roughly), he comes. With the modified pronoun ay -- or more emphatical, lay -- it means (roughly) he came or he has come. The expression boge ayna [sic] or boge layma can be approximately translated he has already come, the particle boge making it more definite."[34]

We have discussed this example at rather tedious lenghh because in it Malinowski carried out explicitly the semantic analysis of a Trobriand sentence in a way which was completely contradictory to his assertions about semantics in the rest of the paper. But this is not the only contradictory matter in the article. At one point Malinowski denied the assumption that the meaning of lexical items is "contained" in them, yet elsewhere he very explicitly referred to the meaning of lexical items (such as the Trobriand words boge and ma, and the English verb run, which he defined as "rapid personal displacement"[35]).

In the remainder of his discussion, Malinowski simply took it for granted that it would be impossible to characterize the meaning of spoken utterances apart from the context of ongoing human activity; more specifically, that there is no way to characterize the meaning of utterances on the basis of internal considerations about the language alone.

granted the idea that, conversely, the meaning of spoken utterance could always be determined by the context of situation. He failed, however, to consider a single one of the many objections which can immediately be raised against this notion. For example: how does the native speaker determine when two contexts are identical or partially alike? Not having the answer to this question puts Malinowski in the position of a phonologist who asserts that he can give a phonological characterization of a language, but who cannot tell you when two utterances of the language are repetitions or partial repetitions of one another. Or consider the question : how does the native speaker relate particular aspects of the situation to particular parts (or to the whole) of a given utterance? One can only speculate about the reasons why Malinowski failed to consider these objections, which, it must be admitted, if left unsolved, are sufficient to vitiate the entire theory. It should be noted too, that Malinowski's semantic theory takes as a fundamental notion, fully integrated human perceptions concerning what is going on in the world. But the human faculty of being able to integrate one's manifold sensory impressions at a given time, together with one's impression of one's own physiological state

at that time into a single comprehensive understanding, which we may call one's understanding of the context of situation doubtless requires a much deeper understanding of human mental processes than that which is required to understand how semantic interpretations are assigned to sentences. Malinowski thus put himself in the unhappy position of attempting to account for something (the semantic interpretation of utterances) by something else (integration of sense perceptions and physiological state) incredibly more complicated.

It would seem that Malinowski simply assumed that it was obvious how people understand the nature of the context of situation given simply the situation itself. The gratuitousness of this assumption has been pointed out by Leach:

"Actually Malinowski ... postulated that the Trobriander was more rational than himself. Although he maintained that, for the Trobriander, there is a clear-cut division between the domain of knowledge and work and the domain of magic, he later confessed that 'I was not able to judge for myself where rational procedure ended and which were the supererogatory activities whether magical or aesthetic.' (Coral gardens and their magic, Vol. I, p. 460)."[36]

It should be clear that Malinowski formulated his semantic theory completely oblivious to the fatal objections which can immediately be raised against them. He furthermore put forward very strong claims about the

explanatory power of his proposed semantic theory; in particular that it accounts for how a language in a given culture develops its characteristic grammatical and semantic structure:

"Each primitive or barbarous tribe, as well as each type of civilization has its world of meanings and the whole linguistic apparatus of this people -- their store of words and their type of grammar -- can only [emphasis mine] be explained in connection with their mental requirements."37

By "mental requirements" he meant here, presumably, the demands placed upon the mind by the range of possible contexts of situation which may be encountered in the given society. This passage is reminiscent of his earlier discussion in 'Classificatory particles' of a semantic theory which would account for the existence and character of certain grammatical facts in all languages on the basis of the structure of societies. Here he is asserting something stronger, namely that a semantic theory in which the meaning of expressions is given by the context in which they occur in some deep way accounts for the nature of the total structure of all languages. The assertion was made here, however, on the basis of absolutely no research into material which could presumably bear on the question, and was given without any indication whatever as to how future research might proceed in order to examine its validity or even promise of fruitfulness.

Our discussion of Malinowski's paper 'The problem of meaning in primitive languages' so far has been concerned with his arguments in the first three sections of the paper. In section IV of the paper, he proceeded to an attempt to show how the meaning of utterances can be determined in three distinctly different types of context of situation. Those are (i) situations in which speech putatively directly interrelates with bodily activity which is furthermore culturally "significant"; (ii) narratives, and (iii) situations in which speech is used to fill, so to speak, a speech vacuum. He nowhere stated this to be an exhaustive classification of possible semantically relevant contexts of situation, and in fact never raised the question of what would constitute an exhaustive classification.

Before going on to consider Malinowski's examples of each of these types, it must be pointed out that he believed that for a person to know the semantic relevance of a particular context of situation, he must have first experienced it first-hand. One cannot, in his view be taught by means of explanation or some other device, how particular contexts define particular utterances.

To illustrate contexts of situation of type (i),

Malinowski portrayed a typical Trobriand fishing scene, and asserted:

"All the language used during such a pursuit is full of technical terms, short references to surroundings, rapid indications of change -- all based on customary types of behaviour, well-known to the participants from personal experience. Each utterance is essentially bound up with the context of situation and with the aim of the pursuit, whether it be the short indications about the movements of the quarry, or references to statements about the surroundings, or the expression of feeling and passion inexorably bound up with behaviour, or words of command, or correlation of action. The structure of all this linguistic material is inextricably mixed up with, and dependent upon, the course of the activity in which the utterances are embedded. The vocabulary, the meaning of the particular words used in their characteristic technicality is not less subordinate to action. For technical language, in matters of practical pursuit, acquires its meaning only through personal participation in this type of pursuit. It has to be learned, not through reflection but through action.

Had we taken any other example than fishing, we would have reached similar results. The study of any form of speech used in connection with vital work would reveal the same grammatical and lexical peculiarities: the dependence of the meaning of each word upon practical experience, and of the structure of each utterance upon the momentary situation in which it is spoken. Thus the consideration of linguistic uses associated with any practical pursuit, leads us to the conclusion that language in its primitive forms ought to be regarded and studied against the background of human activities and as a mode of human behaviour in practical matters.... In its primitive uses, language functions as a link in concerted human activity, as a piece of human behaviour. It is a mode of action and not an instrument of reflection."[38]

This lengthy citation has been given to reveal both the absurd consequences of Malinowski's semantic notions, and the true insights which he had concerning the meaning of words and utterances. First the absurdities. Since Malinowski insisted that one cannot know the

correlation between contexts of situation and utterances until one has experienced them together, it follows that in order to understand Trobriand fishermen while they fish, one must oneself be a Trobriand fisherman. If another Trobriander, who had never before fished, were for some reason invited along one day to observe the others, he would not be able to understand a word they were saying -- they might as well have been speaking English. How, one wonders, did Malinowski manage to acquire sufficient understanding of what Trobriand fishermen say when they fish, in order to be able to describe what they say in such detail?

Another more devastating consequence of Malinowski's position is that, at any given moment in a person's life, he is able to understand only a finite (in fact, extremely small) number of utterances in his own language. This consequence follows from the simple observation that man's finite life-span limits him to only finitely many experiences. The only way which is open to Malinowski to permit him to say that a person can indeed understand infinitely many utterances of his language (and this, after all, is an empirical fact) is for him to say that a person understands

any two utterances which occur in the same context of situation as complete synonyms. But if this is the case, why should anyone ever care about what he says, or even bother to speak at all, if the meaning of whatever he says is completely determined by the context of situation?

From the passage just cited, however, we can also see that Malinowski had an important insight into the nature of the meaning of particular words; that is that the meaning of certain words is not given by the physical properties of their referents, but rather by their function. In order to learn the functional meaning of such words, the use to which their referents are put must be in some way experienced. This insight is, of course, by no means Malinowski's discovery; the idea had also occurred to Aristotle.[39] In a sense, Malinowski's semantic theory resulted from his pushing this insight to the extreme. He insisted that all words are functionally defined, and not only all words, but all possible utterances in a language, and further that the meanings are so learned only by active experience, and never by explanation or paraphrase. This is brought out clearly in the following remark:

"Returning to the above examples of a group of natives engaged in a practical pursuit, we see them using technical words, names of implements, specific activities. A word, signifying an important utensil, is used in action, not to comment on its nature or reflect on its properties, but to make it appear, be handed over to the speaker, or to direct another man to its proper use. The meaning of the thing is made up of experiences of its active uses and not of intellectual contemplation. Thus, when a savage learns to understand the meaning of a word, this process is not accomplished by explanations, by a series of acts of apperception, but by learning to handle it. A word means [emphasis his] to a native the proper use of the thing for which it stands, exactly as an implement means something when it can be handled and means nothing when no active experience of it is at hand. Similarly a verb, a word for an action, receives its meaning through an active participation in this action. A word is used when it can produce an action and not to describe one, still less to translate thoughts. The word therefore has a power of its own, it is a means of bringing things about, it is a handle to acts and objects and not a definition of them."[40]

The second use of language for which Malinowski attempted to show how the meaning of utterances is given by contexts of situation is narrative. Narratives, Malinowski claimed, are associated with two different contexts of situation: the situation of the moment of narration, and the situation referred to by the narrative. He did not consider the possibility of further regress -- of narratives within narratives -- but this was simply an oversight. Malinowski defined the context of situation of the moment of narration as being "made up of the respective social, intellectual and emotional attitudes of those present."[41] But if so,

then obviously it makes no sense to say that the meaning of narrative has anything to do with the context of situation of the moment of narration, for in what sense does the meaning of what is said depend upon the attitude of the listeners? Suppose one member of the audience falls asleep, and another proceeds to daydream. Surely this would not affect the meaning of what is being said! It is clear, however, that Malinowski did not intend this either; he did not assert that the meaning of a narrative has anything to do with the situation of the moment of narration. Instead, he merely wished to show that narratives may have the effect of changing the social and emotional attitudes of the audience. In other words, he was attempting to show how the <u>use</u> of language may be correlated with socially and emotionally characterized contexts, but not the <u>meaning</u> of what may be said. This is certainly a less ambitious goal for a theory of context of situation to achieve. Yet, on further consideration of this case, even if narratives are to be considered "modes of social action", it is not the actual social effect which is significant, but the intended effect on the part of the narrator. The actual narration may fail to achieve the social effect intended, or it may achieve effects

far beyond the initial expectations of the narrator. And while we may legitimately expect there to be a high degree of correlation between what a story-teller says and his purposes in telling his story, to suppose that one could predict in detail what he will say given advance knowledge of his intentions is clearly asking too much. It goes without saying that his intentions may change several times during the actual course of his narration.

The context of situation which Malinowski considered to supply the meaning of the narrative is the context referred to in the narrative, in exactly the same way as in case (i):

"...the words of a tale are significant because of previous experience of the listeners; and their meaning depends on the context of situation referred to."[42]

Therefore the same objections which we raised against case (i) apply here in case (ii).

Case (iii) is a consideration of "the case of language used in free, aimless, social intercourse."[43] Malinowski observed correctly that such use of language cannot be related in any way to any other ongoing human activity, so the question is, 'What context of situation supplies the meaning to utterances in this case?'. Malinowski identified it simply as:

"... just this atmosphere of sociability and ... the fact of the personal communion of these people. But this is in fact achieved by speech, and the situation in all such cases is created by the exchange of words, by the specific feelings which form convivial gregariousness, by the give and take of utterances which make up ordinary gossip."[44]

If this is the context of situation, however, then it certainly cannot be argued that the meaning of speech-acts embedded in it is supplied by it. If so, then again it would be the case that all instances of free social speech intercourse (which Malinowski decided to call "phatic communion"[45]) are synonymous. Instead of adopting this conclusion, Malinowski admitted that indeed the context of situation is unrelated to the meaning of utterances occurring in it:

"A mere phrase of politeness ... fulfils a function in which the meaning of its words is almost completely irrelevant."[46]

Thus all that Malinowski asserted concerning the nature of "phatic communion" was simply that it is a context, more or less well-defined, in which people are not particularly concerned with what they say, or with what they mean by what they say, and that they speak simply to avoid having to remain silent. From this it follows, however, that it is in general impossible to predict what people will say or that they will say anything, from a knowledge of the context of situation.

Curiously enough, it has been remarked that in situations in which men speak simply to avoid the embarrassment of having to remain silent, they resemble automata more than at any other time.[47] We can only remark that if when men most resemble automata, it is impossible to predict what they will say no matter what we know about the context of situation (including knowledge of their complete past history and present physiological state), how much more absurd is it to expect that when men are acting in their fullest human capacity that we should be able to make such predictions.

This completes our investigation of section IV of 'The problem of meaning in primitive languages'. We have shown that in it Malinowski failed to prove that the meaning of utterances is in any way related to contexts of situation, and that he admitted as much himself where the context of situation is either that of narration or "phatic communion". We have seen furthermore that Malinowski failed to show that even his lesser goal; that of relating the use of language to context of situation, can be achieved.

Malinowski seems to have been convinced that it is speech itself, rather than the intentions behind speech acts, which determines social situations.

However, considerations of actual social situations should quickly convince one that such is not the case. We may take as a simple example, a social situation which Malinowski himself described in one of his ethnographic descriptions of Trobriand culture,[48] in which a young man, an offended lover, publicly insults another party for an alleged crime, for the purpose of setting public opinion so strongly against that party that he has no recourse but to commit suicide. Certainly in this case, what determined the social situation was not the actual insults which the young man hurled, but his intentions for so doing. We can be quite certain that the one who made the public insult meditated beforehand on what he should say, so as to make sure that a skeptical audience would be convinced of his case. Upon delivery of the insult, the hearers certainly did not reach the conclusion "the insulted party must commit suicide", simply upon hearing the speech, like automata. They arrived at the conclusion upon weighing the merit of the case as they perceived it, together with a determination of what the appropriate settlement of the matter should be.

Consider also the speech-act which Malinowski

quoted in section II of 'The problem of meaning', in which a Trobriander boasted of his superior sailing prowess. The speech, Malinowski remarked, was intended to incite envy or admiration in his hearers, according to their relationship to him.[49] What motivated the native to speak in this way was not simply to obtain the outward signs of awe and admiration which his hearers gave him, but evidence that those persons thought him to be awe-inspiring and powerful. The important determinant of social situations in which speech-acts are prominent is, therefore, not the speech-acts themselves, but the participants' thoughts, both those of the speakers and those of the hearers. The matter has been well put by the Port-Royal logicians:

"It is not ... the simple outward effects of the respect of men, separated from the consideration of their thoughts, which constitute the objects of love to the ambitious; they wish to command men, not automatons, and their pleasure consists in seeing those movements of fear, of awe, and of admiration which they [their thoughts] excite in others."[50]

Section V of the paper is devoted to a discussion of infant psychology, which was designed to show that children acquire language as a mode of behavior, rather than as an instrument to express thought. We have already commented on the crucial part that this assertion plays in Malinowski's whole argument (above, pp. 29-30).

His argument that children acquire language as a mode of action consisted of the observation (i) that a child is endowed with arrangements for its total care thanks to its parents' instinctive concern for it, and (ii) the most efficient means which the child has for calling attention to its needs is by means of making noise, which, as language begins to develop in him, proves to be an efficient means for bringing about the amelioration of its conditions.

While these observations may be correct, as far as they go, it is certainly clear that they provide no basis for accounting for language acquisition; the very most that they can account for is that a child will develop a small number of arbitrarily chosen noises to designate particular discomforts, requirements, etc. That Malinowski should have left out of his account any mention of a child's purely verbal intercourse with other people is quite surprising. Even the staunchest of contemporary behavioral psychologists, for example Skinner, attempt to account for language acquisition in these terms, and they at least make the assertion that a child is able to coin new speech acts ad lib., and assign to them semantic interpretations by analogy with what he already knows. If this theory is far too weak to account

for the speed and precision with which a language or a set of languages is learned by a child[51], how much worse off are Malinowski's speculations! Malinowski furthermore seemed to be under the delusion that far into late childhood, people use language simply to acquire things, or in conjunction with handling and using objects.[52] It is however impossible to reconcile this position with his own observation that seven-year old Trobriand children turned out often to be excellent informants, and often could discuss intelligently complex matters of tribal culture:

"I have had most valuable information on several points of view from boys and even girls of seven to twelve years of age ... Very often ... they would talk and explain things with a surprising lucidity and knowledge about tribal matters."[53]

Malinowski proceeded from this discussion of child language to a consideration of the language of primitive men, by means of the astonishing suggestion that the language of primitive men is identical to child language in the sense described above. This identification is, however, in Malinowski's terms a perfectly natural one. Since the essential distinction between primitive and civilized men is the ability of the latter to read and write, and children in civilized society up to some age do not know how to

do either, Malinowski's identification of primitive man with children of (civilized) society follows immediately.

Section VI, the final section of the paper, is devoted to a brief investigation of how the categories of universal grammar arise in the mind. Briefly, he contended that the universal categories, which he called "real categories", are reflections of universal human attitudes toward life, and are brought out by the universally found conditions under which children grow up in the world:

> "Language in its structure mirrors the real categories derived from practical attitudes of the child and of primitive man to the surrounding world. The grammatical categories ... are the reflection of the makeshift, unsystematic, practical outlook imposed by man's struggle for existence in the widest sense of the word."[54]

It is not immediately clear from this citation that Malinowski considered these "practical attitudes of the child" to be innate attitudes, or attitudes which he learns out of his early experience. It would seem from his subsequent discussion that he considered them to be innate; he characteristically spoke of their "appearance" rather than of their "learning."[55] Furthermore, since he considered that the universal categories are "identical for all human languages, in

spite of the many superficial diversities,"[56] they must arise out of man's nature rather than out of his experience, in his view.

Malinowski intended that his assertion that the categories of universal grammar arise out of man's "attitude toward the world" should be taken as a denial of two other possible claims about their possible origin: (i) that they are derived from categories necessary for thought, and (ii) that they simply have sprung up in the mind to serve as a basis for grammar-construction alone. His argument against (i), however is vitiated on the grounds that he construed that the position necessarily entails the identification of the categories of universal grammar with the categories of logic. His argument against (i) simply consisted of the remark that the categories of logic are "ill-adapted" to those of grammar.[57] Malinowski apparently missed the fact that grammarians who have maintained (i) generally have not maintained this identification, but rather have maintained that certain logical categories (such as predication, and the truth-function relations) form only a subset of the categories of universal grammar. Thus Malinowski's objection against (i) vanishes. Whether or not we should agree to accept

(i) depends ultimately upon our characterization of the human faculty of thinking, and on whether it can be shown that the categories of universal grammar are derived from this faculty, or that both faculties spring from more "ultimate" sources.

We can have no dispute, however, with Malinowski's rejection of (ii) -- accepting (i) necessarily entails rejecting (ii). Malinowski, of course, had other reasons for rejecting (ii); he believed that there are certain aspects of non-linguistic human behavior which make their appearance at various stages in childhood, which involve making categorizations which resemble in great detail the categories of universal grammar. The fact that this behavior can be explained only in terms of innate ability to categorize which furthermore strongly resembles the categorizations found in universal grammar, was taken by Malinowski as evidence confirming the existence of the categories of universal grammar in the mind. The insight itself is quite profound, although his illustrative examples are not particularly exciting.

His first illustration involves the category which he called "crude substance". He maintained that this category underlies the universal grammatical category

usually called "noun substantive" on the one hand, and a complex set of typical behavior of young children which makes itself manifest when the child begins to play with things, including interest and fascination with detachable, handleable objects, and the tendency to be destructive, that is to try to pull complex objects apart. He argued further that this attitude lasts throughout life and is especially pronounced in adult primitive men:

> "Their interest in animals is relatively greater than in plants; greater in shells than in minerals, in flying insects than in crawling ones. That which is easily detached is preferred. In the landscape, the small details are often named and treated in tradition, and they arouse interest, while big stretches of land remain without name and individuality.[58]

Malinowski had less to say about the real category corresponding to the universal grammatical category of verb, and he argued that "the underlying real category appears later in the child's mental outlook, and it is less preponderant in that of the savage."[59] The category is said to involve action, states of the body and human mood, to be associated with change in time, and that "it lends itself to command as well as to indication and description."[60] As to its extra-linguistic correlates, Malinowski listed man's "great interest in all changes referring to the human being, in phases and types of human action, in states of human body and moods."[61] These remarks are neither

particularly convincing nor exciting, and the same can be said for the rest of his examples. Nevertheless, Malinowski's reason for searching out correlations between universal grammar and universal properties of extra-linguistic behavior is the correct one, and it is certainly conceivable that further research in this area will uncover highly significant correlations of this type.

We can give the other universal grammatical categories considered by Malinowski by way of indicating what he considered to be universal. They include pronouns, adjectives, adverbs, conjunctions, and certain "cases" of nouns, including what he called appellative or nominative, possessive or genitive, objective or accusative, and what he called "prepositional". The reason that this lastmost case is universal, according to Malinowski, is that it is a universal human attribute to consider objects to be in spatial or temporal relationship to one another. If a particular language does not inflect nouns to indicate relationships like "in", "on", "before", etc., then these relationships must be indicated by particles, such as English prepositions.

Section VI concludes with a discussion of what

Malinowski called the "shifting of roots and meanings from one grammatical category to another".[62] Malinowski argued that in very primitive languages, there can be no grammatical processes which derive from a word of one category another word of another category, and more especially where the derivation makes no overt change in the form of the root. Such processes of derivation cannot take place in such languages, he insisted, because it presupposes the apparatus of "metaphor, of generalization, analogy and abstraction,"[63] and the existence of such apparatus in a language indicates that it is somewhat "developed". What this development is supposed to be, Malinowski did not say, but he did assert that to understand it, one must know something about the "psychological and sociological processes of ... semi-civilized communities."[64] The reason that Malinowski wished to exclude such grammatical processes from primitive language presumably is his realization that they cannot be explained on the basis of his context of situation theory of language. Unfortunately, every known human language has an abundant supply of such grammatical processes, so that any attempt to correlate them with "sociological processes of semi-civilized communities" is doomed to failure.

4. Twelve years elapsed between the publication of 'The problem of meaning in primitive languages' and the appearance of Malinowski's next, and final, extensive work on linguistic theory, Coral gardens and their magic, Volume II. Although Malinowski's outlook evolved somewhat over that period, the change in his linguistic theory was considerably less than it was between Argonauts and 'Problem of meaning.' The changes during the later period were mostly concerned with drawing out more fully the implications of his position that the meaning of utterances is provided by the context of concurrent human activity.

We have already pointed out the curious ethnocentricity involved in the formulation of Malinowski's semantic theory, as it appeared in 'Problem of meaning' (above, pp. 30-31). In his introduction to the second volume of Coral gardens, he made this ethnocentricity explicit:

"The theories here advanced will easily be seen to have originated in the actual difficulties of collecting, interpreting, translating and editing texts and terminologies. The approach presented has thus to a large extent been tested on the long and painful experience of learning a native language; on practice of speaking it, of gradually acquiring fluency and that intuitive understanding which enables us, as speaker, to handle the finer shades of meaning and, as hearer, to take part in the quick interchange between several people."[66]

Malinowski introduced three new major ideas into his semantic theory in this book, and all of them are related to this notion that the objective of linguistic analysis is to interpret actual texts in a foreign language in as satisfactory a manner as possible into the language of the ethnographer. The first of these concerns what constitutes linguistic data:

> "It will be obvious to anyone who has so far followed my argument that isolated words are in fact only linguistic figments, the products of an advanced linguistic analysis. The sentence is at times a self-contained linguistic unit, but not even a sentence can be regarded as a full linguistic datum. To us, the real linguistic fact is the full utterance within its context of situation."[67]

The assumption that utterances in context are what constitutes raw linguistic data is harmless enough, but what is not so harmless is the further assumption that the result of linguistic analysis constitutes a "figment" of the analyst's creation. The assumption amounts to a denial that language as such has any real status; all that exists is speech, and not simply speech, but speech in contexts of situation.

The second new major idea concerns what Malinowski called the "range of meaning" of given words in the native vocabulary (notice that Malinowski did not consistently maintain his view on the fictitious status of words). If a sound is used in two different contexts,

it cannot be called one word -- it must be considered to be really two words which happen to be homophonous:

> "... in order to define a sound, we must discover, by careful scrutiny of verbal contexts, in how many distinguishable meanings it is used. Meaning is not something which abides within a sound; it exists in the sound's relation to the context. Hence if a word is used in a different context it cannot have the same meaning; it ceases to be one word and becomes two or more semantically distinguishable units."[68]

It is not difficult to see the consequences of this remarkable view; since for all practical purposes, every time a particular word is uttered it occurs in a novel verbal context, no two utterance-tokens of the same word ever has the same meaning, and conversely since it often happens that two different words (say cat and dog) occur as utterance-tokens in the same context, they must be considered to be synonymous in those contexts. Yet, for all its absurdity, the view follows quite logically from Malinowski's position concerning reality. Since the only reality is the utterance in context, the analyst can do nothing more than to collect and to compare utterances which he finds.

It will be noted that, in fact, Malinowski denied in Coral gardens that there was any connection between mental categories and word classes in language. In the book, he said that "we made an onslaught on the idea that native terminologies represent native mental categories."[69]

Thus Malinowski retracted fully the fruitful idea which he expressed in 'Problem of meaning', that there is a deep underlying connection between mental categories and the categorial structure of the vocabulary.

Viewed in a different way, these two new ideas of Coral gardens may be considered consequences of Malinowski's decision to adopt the major tenets of behavioristic psychology.[70] As a consequence of this adoption, he was of course forced to abandon his former views about the nature of culture in general, which he expressed in Argonauts. This meant, in particular, that he was obliged to maintain that somehow the structure of society is embodied in the actual behavior of its members, and to abandon the view that social structure is a psychological reality. In a remarkable passage, Malinowski called the embodiment of social structure in actual behavior "meaning", and identified as the "real problem" of linguistics the characterization of such "meaning":

> "By 'meaning' I understand a concept embodied in the behaviour of the natives, in their interests, or in their doctrines. Thus the concept of magical force, for instance, exists in the very way in which they handle their magic ... Every magical ceremony is, in its essence, a handling of mana ... But the problem of ascertaining that, for instance, the concept of magical force is embodied in native behaviour and in their whole theoretical approach to magic; and then of ascertaining that they certainly have no term for this concept and can only vicariously express it -- this, in spite of

its negative quality is the real problem of ethnographic linguistics."[71]

The third new major notion in Coral gardens is that the context of situation may enable one to disambiguate sentences which are semantically ambiguous. One simple illustration is the following:

"I-woy-ye tau means 'the man beats' or 'he (subject implied) beats the man'. The context gives the solution."[72]

The realization that such potentially ambiguous sentences may in fact by understood in an unambiguous manner in certain circumstances was by no means a discovery on Malinowski's part. What is surprising however about his realizing this fact is that his semantic theory does not define the notion "potentially ambiguous sentence". This notion only makes sense if one supposes that meaning is a property of sentences, and that a sentence may have two or more distinct meanings connected with it. Within Malinowski's theory on the other hand no sentence should be ambiguous, either potentially or actually, since it can be correlated with at most one context of situation at a time.

The above citation is not an isolated example. Another example, somewhat more involved, concerned the sentence Bi-katumay-da, gala bi-giburuwa veyo-da, pela

molu, which occurred in one of Malinowski's Kiriwinian texts with the meaning 'They might kill us as our kinsmen would not be angry because we would have been killed in famine.'[73] Concerning this sentence, Malinowski remarked:

> "Now first of all this sentence is interesting because of its essential ambiguity [emphasis mine]. If the negative word [gala] were attached to the first verb the whole meaning would be opposite. It would run ... 'They would never dare to kill us as our kinsmen would be angry because we had been killed in famine.' In fact to the European or Christian moral sense it would seem a much greater crime to murder a famished, exhausted man in times of national disaster and because he sought for a bare subsistence than to kill the same man because he was poaching. But the Trobrianders, obeying the stern law of necessity have developed different rules. Our ethnographic knowledge, combined with the fact that the punctuation was indicated by the delivery enabled us to solve this ambiguity."[74]

We may suppose that even if the delivery had not indicated the proper "punctuation" of the sentence, that the sentence would still have been capable of disambiguation on the basis of ethnographic knowledge.[75] Here again, Malinowski took for granted that the sentence had potentially two different semantic interpretations, but without realizing that this should not be possible if his semantic theory were correct.

When one investigates the actual use which Malinowski made of the knowledge of context of situation to interpret particular utterances in the texts which

he had collected, we discover that in fact he did not use it to supply their semantic interpretation at all. Rather, he used it to supplement his knowledge of their meaning, which he obtained independently of his knowledge of their contextual setting. Not only did he use knowledge about context of situation to disambiguate sentences, but he used it also to supply antecedents for anaphorically deleted pronouns, and to determine the exact reference of deictic pronouns. Even more convincing evidence that Malinowski did not actually attempt to determine the meaning of utterances from a knowledge of their setting is the fact that he was not at all hesitant to supply possible contexts of situation for particular texts ad lib. Certainly if the meaning of a text really depended upon the context in which it in fact occurred, and was unintelligible apart from that context, it would be in principle impossible to speculate about possible contexts in which a particular text could occur, given just that text itself. Yet, Malinowski felt perfectly free to do so:

"Take, for example, the second text in our collection, ... which on the face of it [emphasis mine] is merely a definition of certain terms ... Let us see ... whether this text can naturally be placed within some normal context of native life."[76]

We remarked above (p. 26) that between Argonauts of the Western Pacific and 'The problem of meaning in primitive languages', Malinowski went from a position in which he treated the "magical" use of language as exceptional to one in which he maintained that the "scientific and literary" use of language in civilized society was derivative, being the only use of language in which it is used to express thought independent of context of situation. In Coral gardens and their magic, Malinowski made the final step: he declared there that even literary and scientific language is not the expression of thought, but its meaning is also given by correlation with context of situation:

"And it seems to me that, even in the most abstract and theoretical appects of human thought and verbal usage, the real understanding of words is always ultimately derived from active experience of those aspects of reality to which the words belong. The chemist or the physicist understands the meaning of his most abstract concepts ultimately on the basis of his acquaintance with chemical and physical processes in the laboratory. Even the pure mathematician, dealing with that most useless and arrogant [sic!] branch of his learning, the theory of numbers, has probably had some experience of counting his pennies and shillings or his boots and buns. In short, there is no science whose conceptual, hence verbal, outfit is not ultimately derived from the practical handling of matter. I am laying considerable stress on this because, in one of my previous writings ['Problem of meaning'], I opposed civilised and scientific to primitive speech, and argued as if the theoretical uses of words in modern philosophic and scientific writing were completely detached from their pragmatic sources. This was an error, and a serious error at that. Between the savage use of words and the most abstract and

theoretical one there is only a difference of degree. Ultimately all the meaning of all words is derived from bodily experience."[77]

Despite the absurdity of the conclusion, there is an important true insight on Malinowski's part which underlies it. That insight is, that in order for a man to be able to formulate certain concepts in his mind (and/or to be able to express them in words), he requires certain experience in the world of some appropriate kind. Thus, for example, for a man to understand such geometrical concepts as "Things equal to the same thing are equal to each other", he presumably must have had sometime in his life experience with, say, measuring properties of objects, such as, perhaps, length or weight.[78] The flaw in Malinowski's argument is that he considered the relationship between the physical experience and the derived concepts to be a direct one.

In conclusion, a comment is in order concerning Malinowski's espousal of behavioral psychology as the basis for his theory of culture and of language. It turns out that since Malinowski never really gave up his earlier position that the system of culture, at least, constitutes a psychological reality, there exists a real contradiction in his own writing at this time concerning the nature of culture. On the one hand,

in accordance with behavioristic tenets, he argued that individuals are "molded" gradually by their experience in society:

"... the influence of culture -- that is, of all the institutions found within a community, of the various traditional mechanisms such as speech, technology, mode of social intercourse -- this influence works on the individual by a gradual process of moulding. By this process of moulding I mean the effect of traditional cultural modes and norms upon the growing organism. In one way the whole substance of my theory of culture ... consists in reducing Durkheimian theory to terms of Behaviouristic psychology."79

On the other hand, he consciously maintained that social structure is a psychological reality, in accordance with his own earlier views, so that, if you will, he failed in his enterprise of "reducing" his theory to the terms of behavioristic psychology:

"Magic happens in a world of its own, but this world is real to the natives [emphasis mine]. It therefore exerts a deep influence on their behaviour and consequently is also real to the anthropologist. The situation of magic -- and by this I mean the scene of action pervaded by influences and sympathetic affinities, and permeated by mana -- this situation forms the context of spells. It is created by native belief, and this belief is a powerful social and cultural force."80

5. In evaluating the influence of Malinowski's views about language, and in particular about semantics, on J.R. Firth and the London school, it is important to realize that it is only his views as expressed in 1935 that had

any effect. Consider, for example, how the notion "context of situation" was adopted by Firth. For him, the notion did not mean, as it did for Malinowski in 1923, the context of human activity concurrent with and immediately preceding and following the speech act, but rather the whole cultural setting in which the speech-act is embedded, as it apparently did for Malinowski in 1935 (see note 75; and note 2, Chapter IV).

It is only the earlier ideas of Malinowski's, however, which appear to be based on any sort of profound insight. In particular, the ideas (i) that social structure is a psychological and hence non-directly observable reality, and that behavior can only be understood in terms of it; (ii) that functional definitions of certain words are important in semantics, and may be learned through active participation in the proper use of designated objects, and (iii) that the categories of universal grammar must underlie categorizations implicit in non-linguistic human behavior, may be cited. In view of the scope of these insights, the severe judgment of a contemporary British anthropologist that "the abstract theoretical writings of Malinowski are not merely date, they are dead"[81] is simply false. Conversely, the high esteem which

Malinowski currently enjoys in the eyes of the London school, however, is not based on a recognition of the value of these ideas, but rather because he held such notions as the meaning of utterances is given by their correlation with the context of situation, which, as we have shown, not only can be proved false, but also was not consistently maintained by him.

**NOTES**

1. Bulletin of the School of Oriental Studies 1, part 4 (1920), pp. 33-78.

2. Ibid., p. 67. 3. Ibid., p. [illegible].

4. Ibid., p. 78. 5. Ibid., p. 66.

6. Ibid., p. 67. 7. Ibid., p. [illegible].

8. Ibid., p. 74. 9. Ibid., p. 78.

10. Ibid. 11. Ibid., p. 73.

12. Ibid., p. 78. 13. Ibid., p. 49.

14. Ibid., p. 52 15. Ibid., pp. 53-54.

16. Argonauts of the Western Pacific (London, 1922).

17. Ibid., p. 20. 18. Ibid., p. 22.

19. Crime and custom in savage society (Paterson, N.J., 1959 [1926]), p. 42.

20. Ibid., pp. 24-25.

21. Argonauts, op. cit., pp. 21-22.

22. Ibid., p. 23. 23. Ibid., p. 22.

24. Ibid., p. 432. 25. Ibid.

26. Ibid., pp. 451-452.

27. 'The problem of meaning in primitive languages' Supplement I to C.K. Ogden and I.A. Richards, The meaning of meaning (fifth ed.) (New York, 1938 [first ed. 1923]), p. 297.

28. Ibid., p. 307. 29. Ibid., p. 312.

30. Ibid., p. 319. 31. Ibid., pp. 320-321.

32. Ibid., p. 300. 33. Ibid., p. 304.

34. Ibid., p. 303. 35. Ibid., pp. 302-303.

36. E.R. Leach, 'The epistemological background to Malinowski's empiricism' in Raymond Firth (ed.), Man and culture: an evaluation of the work of Bronislav Malinowski (London, 1957), p. 128.

37. 'Problem of meaning', op. cit., p. 309.

38. Ibid., pp. 311-312.

39. De Anima, Book I, Chapter I.

40. 'Problem of meaning', op. cit., pp. 321-322.

41. Ibid., p. 312. 42. Ibid., p. 313.

43. Ibid. 44. Ibid., p. 315.

45. Ibid. 46. Ibid.

47. Sir Alan H. Gardiner, The theory of speech and language (second ed.) (Oxford, 1951), pp. 43-44.

48. Crime and custom, op. cit., p. 78.

49. 'Problem of meaning', op. cit., p. 301.

50. T,S, Baynes (tr.), Port-Royal logic (Edinburgh, 1850), p. 71.

51. N. Chomsky, 'Review of B.F. Skinner, Verbal behavior' Language 35 (1959), pp. 26-58.

52. Thus, 'Problem of meaning', op. cit., p. 321: "Following the manner in which speech is used into the later stages of childhood, we find again that everything reinforces this pragmatic relation to meaning."

53. 'Baloma: spirits of the dead in the Trobriand Islands' [1916] reprinted in R. Redfield (ed.), Magic, science and religion and other essays (Glencoe, Ill., 1948), pp. 224-225.

54. 'Problem of meaning', op. cit., pp. 327-328.

55. Ibid., p. 332. 56. Ibid., p. 328.

57. Ibid., p. 327. 58. Ibid., p. 331.

59. Ibid., p. 332. 60. Ibid., p. 333.

61. Ibid. 62. Ibid., p. 335.

63. Ibid. 64. Ibid., p. 336.

65. Coral gardens and their magic, Volume II (New York, 1935).

66. Ibid., p. xi. 67. Ibid., p. 1).

68. Ibid., p. 72. 69. Ibid., p. 73.

70. Ibid., p. 235. 71. Ibid., p. 6[illegible].

72. Ibid., p. 32. 73. Ibid., p. 25.

74. Ibid., p. 42.

75. Malinowski seems to have acandoned his view that the context of situation is simply the context of ongoing human activity, and to have replaced it with the view that the context of situation is instead the 'context of culture', the total cultural setting of the speech-act. But in so doing, the notion of context of situation is emptied of any significance which it had for semantics under his earlier view. As this particular example illustrates, the only possible relevance which the context of culture can have semantically is to disambiguate inherently semantically ambiguous sentences.

76. Ibid., p. 49. 77. Ibid., p. 58.

78. Haldane and Ross (eds.), Descartes Works, Vol. I, pp. 442-444.

79. Ibid., p. 236. 80. Ibid., p. 215.

81. E.R. Leach, op. cit., p. 120.

## CHAPTER II

1. The eminent Egyptologist, Sir Alan Gardiner, was a personal friend to both Malinowski and Firth. Malinowski indicated his personal indebtedness to Gardiner in a number of his early works,[1] and in the preface to Coral gardens and their magic, Volume II, he indicated that he had carefully read and digested Gardiner's one major work on general linguistics, The theory of speech and language.[2] Firth's expressed acknowledgments to Gardiner do not clearly indicate whether he felt indebtedness to him, or whether he developed his ideas in contrast and opposition to Gardiner. In his first important paper on general linguistics, published in 1935, Firth maintained that he was motivated to write for the following reasons:

> '... first practical experience of linguistic problems in India and Africa as well as more recently in England; secondly, the prevailing uncertainty reflected in [certain] titles [of various books and papers in linguistics], and countless other signs of the overhauling of our apparatus; and lastly and perhaps most important of all a discussion on linguistic theory held by the [Philological] Society on 1 December 1933, led by my friend, Dr. Alan Gardiner."[3]

Unfortunately, the society did not print the text of this paper in its Transactions, so that here it is not clear whether Firth was in essential agreement or disagreement with Gardiner. Later in life, in reflecting on the past, Firth remarked:

a clear distinction between speech and language, and in keeping it to the fore throughout his work."[6] In fact, Gardiner's view of language is essentially Saussurean: for him, language consisted of a fixed store of words and stock phrases, each with its associated meaning or area of meaning. Sentences, on the other hand, he viewed as elements of speech, and were not to be considered as part of language. The following remark concerning the nature of sentences is strikingly Saussurean:

"Sentences are like ad hoc constructions run up for a particular ceremony, constructions which are pulled down and their materials dispersed as soon as their particular purpose has been served."[7]

Where Gardiner differed from Saussure was simply in his greater concern to describe speech rather than to describe language. It is not, however, particularly clear why he was motivated to do so. From the remarks in his first chapter, it seems that his main motivation was to destroy once and for all what he thought was a fundamental misconception, or at least misunderstanding, about the nature of speech, namely that "speech [is] the use of articulate sound-symbols for the expression of thought".[8] Rather, he argued, we should "define speech as the use, between man and man, of articulate sound-signs for the communication of their wishes and their views about things."[9]

"In the '30's, I enjoyed the privilege of long discussions with Sir Alan Gardiner and the late Professor Malinowski, both of whom contributed to the progress of linguistic theory."[4]

In another place, Firth referred to Gardiner's Speech and language as "that difficult book."[5]

Upon examination of this book, we find that in fact, the linguistic theory held by Gardiner is almost entirely incompatible with either the later theory of Malinowski or with Firth's, although it does share certain very important points of contact with them.

The fundamental contention of the book is that language and speech must be distinguished from one another -- that the latter is merely human verbal performance, but the former is that human capability which enables man to speak and to understand speech. He contrasted the two notions as follows:

"Speech is thus a universally exerted activity ... In describing this activity we shall discover that it consists in the application of a universally possessed science, namely the science which we call language. With infinite pains the human child learns language in order to exercise it as speech."[5]

Gardiner maintained that the confusion of the two notions, or worse, their identification with one another, prevents the possibility of giving an intelligible account of either. Of recent linguists, he observed, Ferdinand de Saussure "stands almost alone in making

It is not obvious, however, that there is any misconception to destroy here. Sapir, whom Gardiner listed as one of the linguists who subscribed to the position he was criticizing would presumably have had no qualms about accepting Gardiner's amended definition, and of amending the offending definition to read something like "language is the system which permits thought to be expressed by means of articulate sound-symbols." Gardiner may, in fact, have had other motivations for emphasizing the study of speech as opposed to language. He indicated in the preface to the first edition that he hoped to write a second book, which would deal mostly with a study of words and of rules for combining words into phrases, and if he had written that book, it might have corrected the imbalance.[10] In Speech and language, however, he provided only one really clear definition of what he had in mind concerning the nature of language:

> "Language is a collective term, and embraces in its compass all those items of knowledge which enable a speaker to make effective use of word-signs. But that knowledge is not of to-day or yesterday, for its main elements go back to early childhood. Our vocabulary is constantly being enriched, and the area of meaning belonging to specific words being widened. Words, as the most important constituents of language, say fairly be regarded as its units, though it must be borne in mind that the rules for combining words (syntactic rules, as they are called), and the specific types of intonation employed in pronouncing words, are constituents of language as well."[11]

Gardiner's view of the nature of syntactic rules as being solely concerned with combining words into proper sequences is also distinctly Saussurean.[12]

The focus of Gardiner's attention in his considerations on the nature of language was the word, which he defined as the unit of language.[13] Words, besides possessing inherent grammatical classification, also have what he called "word-meaning".[14] Word-meaning, consists, for each word, of the set of attributes which the mind abstracts from its past experience with the class of things referred to by the word. In speech, if a particular thing is referred to by the use of the word, then the word-meaning may be said to be predicated of the thing-meant by or referred to by this word. In the book, Gardiner made no attempt to characterize the meaning of any particular words, and he never raised the questions which immediately arise when one tries to carry such an attempt out; for example of whether it is possible to characterize the meaning of words in terms of semantic categories, of how to distinguish between defining and accidental attributes of particular classes of objects referred to by words, etc. He did go on, however, to make the interesting and presumably correct observation that the

meaning, or "expression", to use Gardiner's term, of a sentence is formed by composing the word-meanings of the words which comprise it,[15] but unfortunately, he did not pursue this remark further.

Gardiner opposed to the notion "word-meaning" the notion "thing-meant". Corresponding to each sentence of speech, Gardiner maintained that there is some complex "thing" which is associated with it. That "thing", in simple cases, may simply be some unique object, either real or fictitious, or a class of objects, or it may be an extremely complex creation of the mind, which is constructed ad lib. under appropriate circumstances. In the act of communication, the speaker selects some sentence, the expression (or meaning) of which has sufficient resemblance to the thing-meant, which he is trying to communicate. He then utters the sentence. The hearer, taking the meaning of the sentence as a clue to the thing-meant by the speaker, attempts to reconstruct in his own mind that thing meant, also taking as clues his observations about the situational context, and what he knows about the personality of the speaker. Thus,

"I cannot insist too often upon the facts that words are only clues, that most words are ambiguous in their meaning, and that in every case the thing-meant has to be discovered in the situation by the listener's alert and active intelligence."[16]

In another passage, Gardiner compared the use of word-meaning as comprising a set of clues for the determination of the thing-meant by a word or sentence to the procedure for determining the answer in the "animal, vegetable, or mineral" game.[17]

From the preceding paragraph, it will be observed that Gardiner viewed the context of situation of an utterance as being merely one of the aids for the hearer to determine what "thing" the speaker is talking about, and nothing more. He also maintained that the context of situation restricts the speaker as to what he may or may not say at a given moment; or, in other words, that the speaker's perception of the context of situation will narrow the number of possible "things-meant" that he will want to talk about. He still has latitute to entertain infinitely many "things-meant", however. On the nature of these restrictions provided by the context of situation, Gardiner was not particularly explicit, and the following remark is the most that he said on the subject. It will be seen that it is not particularly illuminating:

"Seeing a shooting star, I should find it extremely difficult to bring any of the words discipline, oxygen, or pig into my comment; in fact I am not free, or at least as a practical man I am not free, to say what I like."[18]

Gardiner emphatically denied that the context of situation in any sense "determines" what someone will say within it. Although he did say that "all speech ... is the speaker's reaction to a stimulus,"[19] he immediately warned against interpreting his term "reaction" to mean "automatic response" in the sense that blue litmus-paper reacts by turning red if dipped into an acid solution. Rather,

> "Some human reactions are doubtless almost as automatic and invariable as that of litmus-paper; a man writhes or flinches when he feels intense pain. But speech, at all events, is neither automatic nor invariable, and in regarding it as reaction to a stimulus we merely recall the facts that some relatively objective thing must impinge upon the mind before speech arises, and that, when speech does arise, it both stands in a causal relation to the stimulus and is of a lively and purposive quality. Above all, it must be observed that human beings can react to one and the same thing in many different ways. This is true, indeed, even of perception."[20]

The notion "context of situation" thus plays an entirely different role in Gardiner's theory than it does in Malinowski's. Although it is true that the term "concept of situation" was used in print by Malinowski nine years before Gardiner used it, it does not seem unreasonable to suppose that Gardiner had a hand in the formulation of Malinowski's semantic theory in the early 1920's. It is hardly likely, though, that Gardiner had at that time a much different outlook than he did in 1932, so that if Malinowski

did get the concept from Gardiner, he took it completely out of context, so to speak. J.R. Firth, in his discussion of Malinowski's theory, stated that both Malinowski and Gardiner adapted the notion from the work of a relatively obscure German philologist named Philipp Wegener (to whom, in fact, Gardiner dedicated his book). Firth maintained that Malinowski's interpretation of Wegener was much closer to what Wegener was actually saying than was Gardiner's, but it seems clear that the reverse is true.[21]

We remarked above that the notion "thing-meant" could be, for Gardiner, a highly complex creation of the mind. He provided a number of hypothetical examples; for instance,

> "In such a simple utterance as in the vocative Mary! the thing meant ... is one upon which the mind can brood eternally."[22]

A more interesting example is his "James Hawkins!" illustration, in which he showed that it is not unreasonable to suppose that the thing-meant by the utterance Rain! or Look at the rain! may involve the notions that it will be impossible for one's wife and oneself to walk to a place called Riverside later for tea because it is raining and consequently one's wife will get wet feet, and that will not be good for her health.[23] In this

case, there is no observable relation between the meaning of the utterance and the thing-meant by it, and all of the clues for determining the thing-meant (or almost all of them) are non-linguistic and also non-observable. Gardiner certainly had a healthy awareness of the potential complexities involved in the interrelationships between what people in fact say, what they mean to say, what sort of situation they find themselves in, and what their personality and past experience is. From the fact that he had this awareness, it follows that he should have been able to criticize effectively the characterization of the meaning of utterances which Bloomfield proposed in the second chapter of his book Language. And, indeed, in the retrospect appended to the second edition of Speech and language, written in 1951, Gardiner made such a criticism. After complimenting Bloomfield for giving an adequate description of the context of situation for his "Jack and Jill" story, Gardiner proceeded to argue as follows:

"Indeed, it seems to have been overlooked (in this chapter at least) that words have any meaning at all apart from the things meant by them, since the meaning of a linguistic form is defined as 'the situation in which the speaker utters it and the response which it calls forth in the hearer' (p. 139). The uttered words are,

in fact, thought of as though they were the shot of a gun which by some mysterious virtue in the sportsman's constitution brings down its appointed quarry. By thus confining the account of Jill's successful performance to 'A. Practical events preceding the act of speech, B. Speech, and C. Practical events following the act of speech' (p. 23), Professor Bloomfield renounced any attempt to explain what should surely be the centre of interest in the whole proceeding: he ignored the fact that the words used have a meaning conferred upon them neither by Jill's stimulus nor by Jack's reaction, but by a linguistic community that existed before either of these young persons was born.

The truth is that linguistic theory cannot make any headway without utilization of the mentalistic concepts the validity of which the Chicago Professor disputed. Without these, speech becomes the product of ingeniously constructed robots. 'Purpose', 'deliberation', 'perception' -- all these were for him unscientific terms; the utterance of the speaker and the response of the listener are merely the predestined movements of cogs in the universal machine. It may be so, but that is not what I and others want to know about speech."[24]

Gardiner's criticism of Bloomfield's characterization of meaning is all the more significant, since it not only stands as one of the relatively few serious criticisms of it to appear before very recent times, but also because it carries over directly as a criticism of the position of the later Malinowski and Firth.

Gardiner's entire retrospect is, in fact, a trenchant criticism of anti-mentalism in linguistics, and it is worth quoting at length a passage which contains a singularly apt criticism of the aims of behavioristic psychology:

"For the Behaviourists, if I understand their standpoint aright, physical events are the only verifiable links in that chain of inner occurrences which connects stimulating circumstances with appropriate human action. I believe, on the contrary, that at the conscious stage such physical happenings cease to be of primary importance, the consciousness which belongs to them now taking over its possessor's problem and mediating the next steps, these explicable for the psychologist partly from observation of his object's physical movements and partly from his own power of reasoning and introspected knowledge [emphasis mine]. On this hypothesis sensation, perception, purpose, and the rest are themselves indispensable links in the above-mentioned chain of occurrences, and no mere appendages dangling uselessly from certain uncontested, but altogether mysteriously working, inner physical links."25

2. For Gardiner, the problem of universal grammar can be broken up into two parts: (i) the universal character of words and (ii) of sentences. In Speech and language, he had nothing to say about the former problem, promising a thorough discussion of it in his projected second volume. His discussion of (ii) in Speech and language became somewhat snarled as a result of a confusion of his own making: since he claimed that sentences were part of speech, but not a part of language, he maintained that everything that can be said universally about sentences is in the form of general propositions about speech, and not language. But by his own definition, grammar is part of language, and not speech, so that it is not clear, in his terms, that universal properties of

sentences can be treated in universal grammar.[26] Despite this confusion, however, Gardiner was concerned with universal grammar in his considerations about universal properties of sentences.

To find these universal properties, Gardiner's procedure was simply to ask the question, What linguistic properties must sentences exhibit as a consequence of their being the elements of human speech? The conclusions which he reached from this speculative inquiry turn out to be very similar to the conclusions of the eighteenth century English universal grammarians, notably James Harris.[27] This fact is all the more remarkable because Gardiner gave absolutely no acknowledgment at all to any pre-nineteenth century linguistic tradition in his book. The fact that he should have reproduced the eighteenth century universal grammar tradition under the guise of original inquiry can probably be most easily explained by assuming that this tradition was part of Gardiner's early school training, and that it made its appearance in his later linguistic work unannounced and unaltered. Gardiner's conclusions can be summarized under three headings:

(i) types of sentences found

(ii) the nature of the subject-predicate relation

(iii) grammatical properties of the various types

of sentences found.

Concerning (i), Gardiner argued that three types of sentences are universally found in language, each type depending upon whether the speaker, the listener, or neither are in "focus".[27] Sentences having the speaker in focus were called exclamations; those having the listener in focus were of two sub-types -- questions, if information is requested of the listener, and requests, if action is requested of him. If neither the speaker nor the listener is in focus, then the thing-meant is in focus, and the corresponding type of sentence was called a statement. As we shall see below in connection with (iii), statements were sub-categorized by Gardiner into affirmatives and denials,[28] questions into those for corroboration and those for specification,[29] and requests into commands, wishes, prayers, vocatives, advice, permission, exhortations, prohibitions, warnings, etc.[30]

From this summary, it can be seen that Gardiner has followed the main lines of Harris's universal grammar with regard to sentence types, and has added nothing substantially new either in terms of further classification, or justification of the scheme. Indeed, with respect to justification of it, Gardiner was firmly within the empiricist tradition. He asserted, contrary

to Harris, that he was led to this classification solely by considerations of the social functioning of speech. He made no claim that the scheme is necessary to language because of the structure of the mind. In view of this, it makes sense to classify Gardiner as an "empirical mentalist": one who insisted that language must be considered to be a system contained in the human mind, but one who made no assumptions about the effect of the character of the mind upon the structure of language.

As to the nature of the subject-predicate relation, Gardiner maintained that sentences have the form "subject - predicate" as a fact of language,[31] but that actual speech utterances are not necessarily sentences simply by virtue of having that form. When uttered in speech, they must by themselves embody some single thing-meant. The stipulation is made to avoid having to say, for example, that he is well is a sentence in the utterance I hope he is well, simply because it embodies the subject-predicate relation. Gardiner also held that having this form is not a necessary condition on sentences of speech; exclamations and vocatives must be considered sentences, but do not necessarily have the requisite subject-predicate form.

Gardiner very clearly understood that the notions "subject" and "predicate" were relational rather than categorial in nature, and that particular words or phrases could only be said to be potential subjects or predicates. Subject and predicate were defined by him as being the two parts of a sentence or clause which stand in the relation "saying about" (predicate)/ "being-said-about" (subject) to one another.[32] He noted further that any complex sentence can be reconstituted as the succession of as many separate simple sentences as there are subject-predicate relations in it, and in connection with this, he made the interesting and presumably correct remark that the subject-predicate relation holds between a noun and a modifying adjective, so that in the sentance Old Mr. Jones was a school-friend of my late father (to adapt an example from Gardiner), the subject-predicate relationship holds between Mr. Jones and old and between father and late. The latter is true, even though there is no sentence (having the same meaning) *My father is late; Gardiner takes as the reconstituted sentence corresponding to the phrase my late father, My father is dead.[33]

Gardiner's view of the relational character of the usual sorts of subjects and predicates led him, however, to the conclusion that they exist only in

speech. Since a noun like London cannot be specified in an English dictionary as being inherently a subject, a predicate, or neither, but can only be identified as such in specific sentences such as London is a very great city, This is London, and I live in London, he concluded that these relations do not exist in language. This mistake is probably just another consequence of his insistence upon taking sentences to be units of speech. In this case, it blinded him to the simple fact that it is part of the requirement on the grammar of a language (or upon universal grammar) that it account for the formal properties of sentences, such as the relationship holding between subject and predicate.

We have already given the typology of sentences in universal grammar according to Gardiner's view (above, p. 83). In his discussion of statements, he indicated that he recognized the existence of constituent structure intermediate between words and sentences. He pointed out that the man whom I saw is the same constituent as king in the frame He is ...; similarly of noble birth and good represent the same constituent in this frame, as do at home and here. In the first case, he called the constituent "noun", in the second "adjective", and in the third "adverb". If formalized, this bit of

constituent structure analysis would amount to the kind of analysis achieved by Harris in 'From morpheme to utterance',[34] but without superscript designation to indicate incompatibility of substitution in identical frames.

Statements, as we have already remarked, were considered to be either affirmations or denials, and Gardiner maintained that it is universally true that pure denial or negation can never be a predicate, or that it is impossible to say in any language the equivalent of *<u>That X is Y is not</u>:

"Mere inspection of instances shows that the affirmative statement is reproduced as a whole [in a denial], and then qualified by an adverb which annihilates the predication."[35]

Questions for corroboration modify the sentence form of statements in one of two possible ways, according to Gardiner. Either they will include a specific interrogative particle, or they may exhibit some modification of word-order, such as the inversion of the subject with the first word of the predicate, either the finite verb itself, or one of its auxiliaries. Questions for specification are, like those for corroboration, characterized by either a particle or an inversion, but in addition, the constituent being questioned is placed at the beginning of the sentence. Gardiner suggested

this, however, not as a language universal, but as a universal tendency.[36] Gardiner then argued that the underlying constituent being questioned in a question for specification must be an indefinite word:

"There can be no doubt that questions for specification are derived from questions for corroboration having an indefinite word as a component."[37]

His justification for this remarkable assertion was the speculation that a question like Did you see someone? is not always satisfactorily answerable by either Yes! or No!, unless that "someone" is named. From this simple argument, Gardiner arrived at the decision to represent the underlying form of questions for specification in all languages as Q X Q Indefinite Y, where by Q we mean either an interrogative particle or a sign for obligatory inversion under the appropriate circumstances. This is a fairly convincing demonstration that grammatical speculation is not always necessarily futile. Of course, in this case, Gardiner had at his disposal a lot of other information which could only lead him in the direction of this solution, for example the correspondences between the interrogative and indefinite words in languages such as Greek, Latin, Arabic, Coptic and Late Egyptian, and as early as 1912, Gardiner remarked, Meillet had shown the morphological relationship between the interrogative and indefinite words in the Indo-European languages.[38]

The remainder of Gardiner's discussion of universal grammar is of little interest.

3. We may summarize Gardiner's efforts in Speech and language as representing an attempt to provide an adequate linguistic theory to account for man's "well-nigh incredible skill in speech."[39] By making the correct distinction between man's linguistic ability (his knowledge of lanugage) and his linguistic performance (his actual speech), he was able to conclude that the goal of linguistics is not to give a characterization of linguistic performance, but of ability. In line, however, with the strongly entrenched empiricism current in Britain at that time, Gardiner attempted to account for as many of the properties of language as he could by making maximum use of its relationships with the observable world, especially its use in social situations, and minimum use of assumptions about the mind. In fact, the only assumption about the nature of mind which he felt obliged to make was that it is 'imbued with a never-failing purposefulness."[40] As a consequence of taking such an unstructured view of the mind, and of failing to see the obvious inadequacy of the observable relationships between language and the world to account for linguistic phenomena, Gardiner was

unable to get beyond a very rudimentary and inaccurate characterization of the properties of language, although because of his insights into universal grammar, his characterization can be considered to be somewhat more developed than Saussure's. But as we have shown, his understanding of the nature of universal grammar was no more developed than what had been already understood in Britain in the eighteenth century by men like James Harris.

**NOTES**

1. 'Classificatory particles in the language of Kiriwina', op. cit., p. ; Argonauts of the Western Pacific, op. cit., p. 24; 'The problem of meaning in primitive languages', op. cit., p. 298.

2. The theory of speech and language (second ed.) (Oxford, 1951 [first ed., 1932]). Malinowski's acknowledgment is found in Coral gardens and their magic, op. cit., p. x.

3. J.R. Firth, 'The technique of semantics' [1935] in Papers in linguistics, 1934-1951 (Oxford, 1957), p. 7.

4. 'Philology and the philological society' Transactions of the Philological Society (1956), p. 24.

5. Speech and language, op. cit., p. 62.

6. Ibid., p. 107.

7. Ibid., p. 90; cf. F. de Saussure, Cours de linguistique générale (Paris, 1960 [1916]), p. 172: "La phrase est le type par excellence du syntagme. Mais elle appartient à la parole, non à la langue ... Le propre de la parole, c'est la liberté des combinaisons."

8. Ibid., p. 17. 9. Ibid., p. 18.

10. Ibid., p. 13; in his preface to the second edition, he confessed that the book will never be written (p. viii).

11. Ibid., p. 88.

12. Cf. Cours, op. cit., pp. 170-171: "... dans le discours, les mots contractent entre eux, en vertu de leur enchaînement, des rapports fondés sur le caractère linéaire de la langue ... Ces combinaisons qui ont pour support l'étendue peuvent être appelées syntagmes. Le syntagme se compose donc toujours de deux ou plusieurs unités consécutives. Placé dans un syntagme, un terme n'acquiert sa valeur que parce qu'il est opposé à ce qui précède ou ce qui suit, ou à tous les deux."

13. Speech and language, op. cit., p. 63 et passim.

14. Ibid., pp. 33-37. 15. Ibid., p. 31.

16. Ibid., p. 50. 17. Ibid., p. 33.

18. Ibid., p. 254. 19. Ibid., p. 263.

20. Ibid.

21. 'Ethnographic analysis and language with reference to Malinowski's views' in Man and culture, op. cit., p. 102. Firth denied the very objectives for which Wegener developed Situationstheorie, one of which was to be able to determine the logical subjects of sentences when they do not correspond to the grammatical ones.

22. Speech and language, pp. cit., p. 52.

23. Ibid., pp. 71 ff. 24. Ibid., p. 335.

25. Ibid., p. 344.

26. Cf. A.W. de Groot, 'Structual linguistics and syntactic laws' Word 5 (1949), p. 2: "But if the sentence should belong to speech, this would lead to the inevitable and somewhat baffling conclusion that it lies outside the field of grammar."

27. James Harris, Hermes, or a philosophical inquiry concerning universal grammar (London, 1751), Book I.

27a. Speech and language, op. cit., p. 189.

28. Ibid., p. 295. 29. Ibid., p. 304.

30. Ibid., p. 310. 31. Ibid., p. 184.

32. Ibid., p. 268. 33. Ibid., pp. 321-324.

34. Z.S. Harris, 'From morpheme to utterance' [1946] reprinted in M. Joos (ed.), Readings in linguistics (New York, 1958), pp. 142-153.

35. Speech and language, op. cit., p. 301.

36. Ibid., p. 308. 37. Ibid., p. 307.

38. Ibid., p. 308. 39. Ibid., p. 325.

40. Ibid., p. 324.

# CHAPTER III

In this chapter, we shall consider Firth's papers in linguistics up to the time of his appointment to the Chair in General Linguistics at the University of London, and shall restrict our attention to those which have been reprinted in his Papers in Linguistics, 1934-1951.[1] It will be instructive to be able to compare the central ideas of this period with those of his later period, when under his influence the London school was formed. One especially striking fact, in view of Firth's far-reaching influence on developments in British linguistics to date, and his potential influence on the future of linguistics in general, as a result of the dissemination of the ideas of his students and colleagues which is now taking place, is the extraordinary poverty of Firth's own linguistic ideas and of the substantive work in descriptive linguistics which he published. It will be one of the objectives of this chapter to indicate the relationship of the ideas expressed in Firth's earlier writings to the ideas of Malinowski, Gardiner, and Daniel Jones, and to compare these ideas, at least with respect to phonology, to the notions current in American linguistics during the same period.

The single most important notion in Firth's early

writings is that of context. One might say that Firth took the current notions of phonological, morphological, and lexical contexts, which were already well-established in linguistics, added the Malinowskian notion of context of situation, and concocted a view of language which may be regarded as an arrangement of contexts, each one serving as an environment for the elements or units at each of various "levels". Firth called these levels phonetic, lexical, morphological, syntactic and semantic; the elements on each of these levels he called phonemes, words, morphemes, syntactic categories, and semantic categories; and the contexts he called phonological, lexical, morphological, syntactic and situational.[2] Firth made no serious attempt to define any of these levels rigorously, and paid relatively little attention to any of them , except the phonetic and the semantic levels. In particular, he made no attempt to arrange these levels systematically with respect to each other, except to note the following relationships among them:

(1) Phonemes can only be studied in relationship to words. This position is taken directly from Jones;[3] what this meant for Firth was that the phonetic context which is relevant to the study of phonology is limited to the

sounds which are contained within the units on the lexical level. External sandhi was thus excluded as a phonological problem for Firth at this time.[4]

(ii) If pairs of phonemes show a consistent relationship on the lexical, morphological, or syntactic levels, this constituted evidence for Firth that their differentiae are significant phonological features of the language. When a simple phonological opposition of this sort happens to be the only overt indication of an actual lexical, morphological, or syntactic opposition, then Firth said that the particular phonemes have "major function".[5] On occasion, Firth used his knowledge of major function patterns to decide what the phonemes are in particular contexts in particular languages. Thus, the intervocalic Tamil sound [ḍ], a retroflexed flapped d, as representing the Tamil phoneme ṭ, because it stands in relation to phonemic ṭṭ [ṭṭ] in a major function in precisely the same way as do ṭ to ṭṭ; c to cc; ḷ [ɻ̆] to ḷḷ, etc. Firth gave examples such as the pair paṭu [paḍu] 'I endure' versus paṭṭu [paṭṭu] 'enduring', etc. as manifesting the syntactic role of the opposition of single consonants to geminate consonants in Tamil.[6] Firth did not, however, give himself free rein to using syntactic information of this sort to help determine the optimal phonological

analysis of languages, especially where doing so would lead him to identify phones as members of phonemes having sounds bearing little phonetic similarity to other members of the phoneme. Unfortunately, he never made clear what constraints he was under. He seemed to admit "partial phonemic overlapping", if the following remark can be at all taken seriously:

"It so happens that intervocalic kk [in Malayalam] sounds rather like initial k and intervocalic k rather like g."[7]

It is probably safe to say that he refused to consider any solution which would require more than a minimal amount of imagination. Thus, for example, he argued that the vowels of the modern Sanskritic languages of India cannot be paired into a long and a short series, because besides the simple pairing of [ə] and [a] in major function, in the same major function, [ɪ] is paired with both [i] and [e] and [ʊ] is paired with both [u] and [o]. He quoted, as an illustration of the pairings the Urdu passive forms [pɪsna] and [cʰɪdna], which are related to the active forms [pisna] and [cʰedna] respectively. Firth failed to consider as a possible phonemicization which treats [i] as representing ii; [e] as representing ai; [ɪ] as representing i; [u] as representing uu; [o] as representing au; [ʊ] as representing u; [a] as representing aa,

and [ɑ] as representing a. This solution permits the active and passive forms of the verb which Firth quoted to be related by a rule which deletes the first vowel of a two vowel sequence in initial syllables of verbal roots in the passive voice. In fairness to Firth, it should be remarked that few of the phonologists of his day would have countenanced this solution either, and it is to Firth's credit that he stated the problem in a fairly clear way.

Firth's notion of "major function", it should however be noted, was certainly no new idea; although he acknowledged no sources for it, it is clearly nothing more than Sapir's or Bloomfield's or Boas's notion of internal modification. A tantalizing question for which no definite answer can probably ever be given is the extent to which Firth recognized that it was phonological features, rather than phonemes, which stood in opposition to one another in major function. Firth acknowledged having been personally acquainted with Trubetzkoy[8] and so was presumably acquainted with Prague school work, but generally their ideas seemed to have had little influence on him.

(iii) Forms which are ambiguous on one level are not necessarily ambiguous on another, and Firth seemed to have realized to some extent that a hierarchy is

imposed on his levels by this fact. Thus the form bɔ:d 'board' on the phonetic level is "functionally ambiguous". By appeal to morphology, however, it may be determined that the form may either be an uninflected noun, an uninflected verb, or the "d-form" of a verb bɔ:. Similarly, the still ambiguous noun (on the morphological or lexical levels) may be resolved in specific contexts of situation, the contexts on the level of semantics. The semantic functions of the noun may be determined:

"(1) positively by the use of the words in relation to the rest of the situational context, and (2) negatively by what is termed contextual elimination. The presence of a chess-board might eliminate a commercial board or a board of studies."[4]

Firth defined "meaning" as the relationship between an element at any level and its context on thatt level. Thus, the meaning of any sentence consisted of the following five parts:

(i) the relationship of each phoneme to its phonetic context; i.e. the other phonemes in the word of which it is a part.

(ii) the relationship of each lexical item to the others in the sentence.

(iii) the morphological relations of each word, and perhaps also the relationship of each morpheme to every other word containing that morpheme (something like

Saussure's notion of rapports associatifs).

(iv) the sentence type which the given sentence is an instance of. Since Firth had practically nothing to say about syntax at any time during his life, one can only speculate about what ideas he actually had concerning syntax.

(v) the relationship of the sentence to its context of situation.[10]

It is immediately apparent that the first four relations have nothing to do with the meaning of sentences in the ordinary sense of the word, so the burden of Firth's semantic theory must be borne by the fifth relation. If it were the case that Firth meant by the relationship of sentences to contexts of situation what Malinowski meant (either in 1923 or in 1935), then we could simply say that Firth made an assertion about the nature of semantics which happened to be false. But, it turns out, that Firth generally did not mean what Malinowski meant, with the consequence that Firth's semantic theory asserted nothing at all about the meaning of sentences. It is one of the most curious facts about contemporary linguistics that the man who defined the goal of linguistics as the elucidation of meaning[11] had absolutely nothing to say about the subject.

Before discussing further Firth's semantic notions, we shall consider in greater detail his phonological ideas of this early period. In his earliest papers 'The word "phoneme"'[12] and "The principles of phonetic notation in descriptive grammar'[13] he defined the "phoneme" as a "functional unit" which consist of sounds which appear in non-overlapping phonetic contexts in words:

"One of the functional phonetic units of Tamil, for example, is something which is not p, t, or pp, or tt, or even kk, but variously k, g, c, ɟ, x, ɣ (I.P.A.), according to context. This kind of functional phonetic unit has been termed a phoneme. Six alternant k-phones have been selected from a very large number, because they are clearly distinguishable by the most stubborn ear. As an illustration of what is meant by a phoneme, we may take the Tamil k-phoneme above. The alternant phones $k_1$, $k_2$, $k_3$, $k_4$, $k_5$, $k_6$ necessarily occur under under the conditions $x_1$, $x_2$, $x_3$, $x_4$, $x_5$, $x_6$, which are directly observable and definable in one style of speech of a certain type of speaker from a certain place, and can therefore be represented by the sign k ... In Tamil, therefore, the k-sign represents something used habitually in a variety of phonetic contexts, in which other 'sounds' or phonemes may also be used."[14]

The phonological theory embodied in this remark is simply orthodox Daniel Jones phonemics; Jones, in fact, used this very example from Tamil (with credits to Firth) as an illustration of "the grouping of several quite distinct sounds into single phonemes."[15]

Very shortly afterwards, however, Firth developed a much more cautious approach to phonological analysis

involving a further restriction on what may constitute conditioning environments, besides the Jonesian restriction to intra-word context. The new restriction involved defining two new notions: "specific" phonetic contexts and "general" phonetic contexts. To illustrate what Firth meant by distribution of sounds in specific contexts, we may quote:

> "... it will be seen that in the context bi:d, i: is used as distinct from fifteen other possible substitution counters, in pul, u is used in contra-distinction from eleven other phonemes, in h d, the use of * is dependent on the potential use of the other twelve alternatives."[16]

By comparing these specific contexts with one another, Firth said that he could arrive at a "general" context -- call it CVC -- in which twenty-one possible terms, or phonemes, can occur in the position marked V. In another general context, CV, only eighteen phonemes can occur in the position marked V, etc.[17] The restriction which Firth introduced on phonemic analysis was that phonemes could only be defined for general contexts, not for the whole class of words of the language. The allophones of each phoneme of each general context are those sounds which are contextually defined within the class of specific contexts which comprise the general context. Phonemes occurring in two different general contexts, or even in two different positions in

the same general context were considered to be strictly incomparable with one another. Firth first enunciated this principle in his paper at the Second International Congress of Phonetic Sciences in 1935 by means of two examples, one from Hindi, and the second from Marathi:

"But it is only in certain general contexts that all forty alternances or substitutions [of plosives] are possible; e.g. medially or intervocalically, so that I should hesitate to make any general statement about the function or value of any one term in the language as a whole apart from a more or less determined [or general] context. Whereas t in intervocalic position is one of forty plosive terms in that context, in initial position it is one of twenty ... If you like, initial t is a different 'phoneme' from intervocalic t, the conventions of position differentiating them in the notation."[18]

and:

"In initial position only two nasal consonants can be used, n and m. In final position there is a three-term nasal alternance, but immediately preceding another consonant, especially stops, only one is possible, the nasal homorganic with the following consonant ... The actual mechanism and act of utterance of n, for example, in each of the three cases would be different... Though writing them with the same symbol on practical phonetic grounds, I should not identify them in any other way. That they are the same 'phoneme' is the very last thing I should say."[19]

If made explicit, Firth's newly defined elementary phonological unit (at about this time, it seems, Firth stopped using the term "phoneme" as a technical word), is precisely the same thing as W.F. Twaddell's (macro-) phoneme as defined in his 1935 paper *On defining the phoneme*[20], and it is remarkable to note the similarity

of their arguments for justifying the adoption of this new phonological entity, and Twaddell's argument can be compared directly with Firth's:

"By taking all the articulatory ranges within which significant differentiation occurs in the language, we can construct the maximal phonological system of the language. But in nearly all languages, that potential maximum of differentiation is not uniformly realized. There are systematic gaps, i.e. there are cases of less than maximal differentiation within a given articulatory range. These systematic gaps are just as much a part of the phonological system as are the maximal differentiations ... For many linguists, it appears, the phoneme functions as a unit to be represented by a symbol in a so-called phonetic transcription. It appears that the unit these linguists require cannot sufficiently take into account either phonological or phonemic facts; it would clarify the issue if these units might be called 'graphemes', 'transcribemes', or even 'letters'. For I know of no earlier phoneme-definition which does not achieve transcriptional sanctions by violence to essential phonological relations and palpable phonetic fact."[21]

The similarity between Firth's and Twaddell's positions has been rarely noted; Robins has pointed it out,[22] but without noticing, apparently, that at the time Firth first enunciated it, it was practically the same as Twaddell's.

The general contexts, with respect to which Firth's new "phonemes" were defined, all came to be what is generally called syllable types, defined with respect to position within words. Typical general contexts for Firth were, then, word-initial and final, intervocalic, closed syllable, open syllable, etc. He apparently was of the

opinion that consonant clusters (except when they occur across a syllable division) are always to be regarded as units, or phonemes in his new sense:

> "Consonant groups, such as st, str, sp, spl, sk, skr, in initial position in English, are best regarded as group substituents and no attempt should be made to identify the function of the letter 't' (here part of a digraph or trigraph) with that of a similar letter used in another context."[23]

If Firth meant this to be taken as a serious proposal governing phonological analysis, and there seems to be no reason to think that he did not, then it can be easily seen that in many cases it leads to the introduction of unnecessary complexities in phonological statements. In classical Greek, for example, if initial clusters were considered to be units of their own, then the form b'allō 'I throw' would be represented by Firth b'allō, whereas bl'epō 'I see' would be represented say as B'epo, where B symbolizes initial bl. But also, the middle aorist participle of b'allō, namely bl'ēmenos, would have to be represented by Firth as B'ēmenos, thus missing the obvious fact that the initial cluster in the participle arises by apocope of the initial vowel, and consists of the b and the l of the underlying verb root. And Firth's description would still require a rule stating that phonological B was pronounced [bl]!

Firth's analysis of the monosyllable in a Hunanese dialect of Chinese[24] is his only descriptive work in which he attempted to use his new phonological approach to any degree. It is immediately clear upon investigation of his analysis that he was led to introduce a number of unmotivated complexities into his statement, several of which have already been pointed out by Einar Haugen in his review of Firth's Papers.[25] Haugen pointed out, for instance, that Firth's failure to identify word-initial y and w with y and w which follows a word-initial consonant, leads to unmotivated complexity in stating the conditions on other allophonic variation:

> "In Chinese /y/ is a phoneme in /ya/ but a prosody in /hya/, described as 'yotization'. Yet his description of the allophonic effects of /y/ on following vowels shows that it is the same whether it is a consonant or a prosody (cf. the description of following /u/ as a 'close centralized vowel with slight friction' after /y/ and in 'yotized syllables' [p.] 82). Because the postinitial /y/ contrasts with /w/ only, Firth regards it as having a different function and assigns it to the level of the syllable. But the argumentation is far from compelling."[26]

Of course, Haugen's objection to Firth's analysis is not entirely right as it stands, for he would substitute for it an analysis which would hide the fact that after consonants, "/y/ contrasts with /w/ only"; what is required is a phonological representation which permits

both the ready identification of word-initial and post-consonantal y (to enable the simplest statement of the allophonic variation of u, etc.), and which clearly shows in the representation that after consonants, y contrasts only with w.

Haugen also pointed out that because Firth chose to designate as two different syllable types (and hence two different general contexts): those with "closing nasalization", i.e. nasalization of the final vowel of the syllable, and those which are closed with a fully articulated alveolar nasal, Firth missed an obvious simplification in his analysis. The facts are, that in syllables with closing nasalization, only the mid-vowels o, ɤ, and e, and the diphthong ao may appear, while in syllables closed with a fully articulated nasal consonant, only the non-mid vowels i, a, and u may occur. Haugen made the obvious point -- since closing nasalization and final articulated nasal are in complementary distribution with respect to the preceding vowel, why not treat them as allophonic variants, thus reducing the number of syllable types by one, in which, furthermore, all of the vowels of the language are permitted to occur.[27]

This concluded our discussion of Firth's early phonological ideas. As we shall see in the next chapter

these ideas led quite naturally into Firth's one major phonological idea of the later period, prosodic analysis. There is also a genuine parallel between Firth's development of phonology in this way, and the simultaneous development in America of the notions "distributional analysis" of phonemes and of "long components" out of Twaddell's macro-phoneme idea.

Concerning Firth's semantic ideas, the central notion for him, as for Malinowski, was that of context of situation. But like Malinowski in 1935, Firth defined context of situation as including the entire cultural setting of speech, and personal history of the participants, rather than as simply the context of concurrent human activity:

"The central concept of the technique here sketched is the context of situation, in which, in a sense, whole stretches of personal biography, and cultural history are involved, and in which past, present, and future all meet."[28]

However, it seems that Firth realized that it is impossible to use this notion to provide semantic interpretation of sentences, because practically nothing can be said about it in any relevant way. He recognized them to be "infinitely various".[29] So, in the very same paragraph in which he expressed this recognition, he introduced a new notion, that of "typical" context of situation,

which is at least not subject to the objection that nothing systematic can be said about it.

By a typical context of situation, Firth meant that aspect of the social situation in which people happen to find themselves at a given moment, which determine what social roles each of them are obliged to play. Since for any individual, the total number of social roles he must play is finite, the number of typical contexts of situation which he will encounter in life will also be finite. Firth then asserted that semantics is not the study of speech in contexts of situation of the Malinowskian type, but rather of speech in typical contexts -- that semantics is properly the study of those speech styles which are appropriate to specific social roles which individuals play:

> "Speech is not the 'boundless chaos' Johnson thought it was. For most of us the roles and lines are there, and that being so, the lines can be classified and correlated with the part and also with the episodes, scenes and acts. Conversation is much more of a roughly prescribed ritual than most people think. Once someone speaks to you, you are in a relatively determined context, and you are not free just to say what you please. We are born individuals. But to satisfy our needs we have to become social persons, and every social person is a bundle of roles or <u>personae</u>; so that the situational and linguistic categories would not be unmanageable. Many new categories would arise from a systematic observation of the facts.[30]

Semantics, then, was defined as the classification of utterances of a language into the typical contexts of situation for which they might be appropriate. Whether or not we consider this to be a worthwhile task, or even a possible one in any significant sense, it should be immediately apparent that such "semantics" has nothing whatever to do with the meaning of sentences in the ordinary sense of the word.

This fact has not been totally lost on members of the London school; thus Palmer has admitted that there is no linguistic use for the notion context of situation (in the sense just defined), except for the purpose of delimiting various styles of speech.[31] He quite emphatically pointed out the irrelevance of the notion context of situation for the study of meaning:

> "Statements about context of situation may claim greater objectivity, and it might be theoretically supposed that all utterances could though in a very complex statement, be ultimately accounted for in terms of the situations in which they are employed and the way in which they are expressed in these sentences. In practice, however, only a tiny fraction of what is usually meant by meaning, appears to be statable in terms of context of situation."[32]

It follows, therefore, that on Firth's fifth level of semantic analysis, he had absolutely nothing to say about the meaning of utterances. This means that Firth's much-heralded "spectrum analysis"[33] of meaning said absolutely

nothing about that subject.

Firth actually went further than simply to say that for the proper study of sentences they should be classified according to the typical contexts of situation for which they are appropriate. He maintained that the class of utterances appropriate to each context is an entity of its own, a separate "language" if you will, having no relationship with any other class of utterances. As a consequence, he came to view the notion "unity of language" as a misconception:

> "The multiplicity of social roles we have to play ... involves also a certain degree of linguistic specialization. Unity is the last concept that should be applied to language ... There is no such thing as _une langue une_ and there never has been."[34]

As with many of Firth's pronouncements, this one is open to a considerable latitude of interpretation. Under the most favorable interpretation, Firth is simply saying that in some sense the language of baby-talk is different from ordinary discourse, and this again is different from the language of legal documents, but even here to say that "unity is the last concept that should be applied to language" is highly misleading. A less favorable interpretation makes Firth out to say that the expression _Good day!_

when uttered as a greeting is completely unrelated to the same Good day! when uttered as a farewell, and so on for countless such instances. Nothing which Firth wrote later ever has clarified this issue, nor has anyone else of the London school, apparently, attempted such a clarification.

Firth's decision to deny ontological status to the notion "language" is, however, easy to understand, as soon as it is realized that his 'Technique of semantics', in which it was first expressed, was written as a sort of reply to Gardiner. The decision, obviously, destroys Gardiner's distinction between speech and language -- only the former exists. Indeed, as it may be clearly seen from Firth's later writings, he was anxious to demolish all Saussurean dualisms, such as langue/ parole, signifiant/signifie, and beyond these such dualisms as thought/expression.[35] He viewed this wish as being in complete agreement with the "prevailing ideas" of positivism and behavioral psychology of his times -- this in spite of his later curious disclaimer about not being anti-mentalistic[36] -- as the following citation clearly shows:

"Nevertheless a pragmatic functionalism seems to me to lead to much clearer definition, and to the statement and explanation of facts, without having to postulate a whole body of doctrine in an elaborate mental structure

such as is derived from de Saussure. The description and explanation of our facts by the simple process of contextualization, the distinction between minor and major functions into morphological, syntactical, lexical, semantic, etc., seems to me fundamentally sound in the present state of our knowledge and for future progress in harmony with prevailing ideas."[37]

In adopting a more or less behavioristic outlook, Firth carried over completely Malinowski's ideas concerning the nature of language acquisition by children; the view which we have shown above (p. 47) to be even weaker than current behavioristic views:

"Every baby quickly learns the magic action of his voice, and the answering magic of his fellows. It may make him feel better, it may make him feel worse. A noise, an answering noise and 'hey presto' he either gets what he wants or what he deserves. This phonetic magic, which makes things happen and which so cogently compels people to do things, is our first and most important initiation in humanity, and the first and most fundamental language lesson we learn. That is what language really means to us -- a way of doing things, of getting things done, a way of behaving and making others behave, a way of life ... We can only arrive at some understanding of how it works, if we establish with certainty that the facts of speech we are studying can be observed or regarded in actual patterns of behaviour. We must take our facts from speech sequences, verbally complete in themselves and operating in contexts of situation which are typical, recurrent, and repeatedly observable. Such contexts of situation should themselves be placed in categories of some sort, sociological and linguistic, within the wider context of culture."[38]

It is curious that Firth should even have thought that anyone could possibly learn how language works if the power to acquire it is "magical".

## NOTES

1. Papers in linguistics, 1934-1951 (Oxford, 1957). All references to papers in this collection will be by title only, with its date of publication in square brackets following the title.

2. 'The technique of semantics' [1935], p. 27.

3. Thus Daniel Jones's well-known definition of the phoneme in The phoneme: its nature and use (Cambridge, 1950), p. 10, as "a family of sounds in a given language which are related in character and are used in such a way that no one member ever occurs in a word in the same phonetic context as any other member."

4. This contention is supported by the observation that no such examples were discussed by Firth during his early period. Compare Jones's statement concerning the restriction "in a word" in his definition of the phoneme, op. cit., p. 10: "To extend the definition to cover word-groups or sentences would greatly complicate matters. At the best it would increase the number of phonemes in some languages; it might even be found to render the elaboration of any consistent theory of phonemes impossible, since variations of sound at word junctions may take so many forms."

5. 'The use and distribution of certain English sounds' [1935], p. 37; 'Phonological features of some Indian languages [1935], p. 49.

6. Ibid.

7. 'Alphabets and phonology in India and Burma' [1936], p. 71.

8. 'Sounds and prosodies' [1948], p. 124.

9. 'Technique of semantics', p. 26.

10. Ibid.

11. Thus, for example, 'General linguistics and descriptive grammar' [1951], p. 225: "From this point of view, all branches of linguistics are concerned with 'meaning', even phonetics." Also 'A synopsis of linguistic theory,'

1930-1955' in Studies in linguistic analysis (Oxford, 1957), p. 23: "The object of linguistic analysis as here understood is to make statements of meaning so that we may see how we use language to live. In order to do this analysis we must split up the problem and deal with it at a series of levels."

12. [1934], pp. 1-2.

13. [1934], pp. 3-6.

14. Ibid., pp. 3-4.

15. Jones, op. cit., p. 22.

16. 'The use and distribution of certain English sounds', p. 37.

17. Ibid.

18. 'Phonological features', p. 48.

19. Ibid., p. 51.

20. On defining the phoneme = Language monograph no. 16 (Baltimore, 1935). Reprinted in M. Joos (ed.), Readings in linguistics, op. cit., p. 73.

21. Ibid., p. 76.

22. 'Obituary of J.R. Firth', op. cit., p. 198.

23. 'Alphabets and phonology', p. 73.

24. J.R. Firth and B.B. Rogers, 'The structure of the Chinese monosyllable in a Hunanese dialect (Changsha)' [1937], pp. 76-91.

25. Language 34 (1958), pp. 498-502.

26. Ibid., p. 501. 27. Ibid., p. 500.

28. 'Technique of semantics', p. 18.

29. Ibid., p. 28. 30. Ibid.

31. F. R. Palmer, 'Linguistic hierarchy' Lingua 7 (1958), p. 237.

32. Ibid., p. 236.

33. 'Modes of meaning' [1951], p. 192: "Having made the first abstraction by suitably isolating a piece of 'text' or part of the social process of speaking for a listener or writing for a reader, the suggested procedure for dealing with meaning is its dispersion into modes, rather like the dispersion of light of mixed wave-lengths into a spectrum."

34. 'Technique of semantics', p. 29.

35. Cf. 'General linguistics and descriptive grammar', p. 227: "My own approach to meaning in linguistics has always been independent of such dualisms as mind and body, language and thought, word and idea, signifiant et signifié, expression and content. These dichotomies are a quite unnecessary nuisance, and in my opinion should be dropped."

36. Ibid., p. 225.

37. 'Use and distribution', p. 36.

38. Ibid., p. 35.

## CHAPTER IV

1. From the time of his appointment to the Chair of General Linguistics until his death, Firth concerned himself mainly with the development of two new ideas, one concerning phonology and the other semantics. Both of these ideas have their foundations, to be sure, in his earlier work, but in their later developed form, they have come to be considered the hallmarks of London school linguistics today. These ideas are the notions of prosodic analysis in phonology, and of meaning by collocation in semantics. During this time, too, Firth actively supervised a considerable amount of work, especially in descriptive phonology, and beginning in 1947, papers by Firth's students and colleagues in London, and then elsewhere, began to appear, most of which are concerned to apply and to extend Firth's ideas in various ways. In a fairly complete bibliography covering the period 1948-1960, C.L. Bursill-Hall has listed about one hundred such books and papers.[1] Except where these new ideas explicitly contradicted earlier ones, Firth by and large maintained intact the system of ideas which he had developed by the late 1930's. Much, in fact, of Firth's later publication constitutes a rather tedious rehash of his earlier ideas.[2] Therefore, in discussing this later

period of Firth's work, we shall focus our attention primarily on these two new developments in Firth's thinking.

2. As we have seen in Chapter III, the goal which Firth set for phonological analysis in his early period was to list the general phonetic contexts, or syllable types, of each language, and to list the entities which substitute for one another in given positions in these syllable types, and in words, which are made up of sequences of syllables. In his 1937 description of the Chinese monosyllable, he added as a third goal to list those phonetic features which must be considered to be properties of entire syllables, rather than of designated positions within them. Obviously tone in Chinese may be considered such a feature, and similarly, he argued, the features "yotization" and "labio-velarization" may be so considered.[3]

In 1948, Firth announced a purportively new and distinctive phonological theory which took as its objectives the meeting of the three goals listed above. To the entities which substitute for each other in the various positions of the various syllable types, he proposed the name "phonematic unit"; to the list of the syllable types, and the entities characteristic

of syllables (and words) as a whole, he suggested the name "prosodic unit".[4]

In this paper, Firth also explicitly rejected two of the tenets of his earlier phonological theory. First he dismissed the assumption, taken from Daniel Jones, that the upper limit on the relevant context for phonology is provided by the word:

> "For the purpose of distinguishing prosodic systems from phonematic systems, words will be my principal isolates. In examining these isolates, I shall not overlook the contexts from which they are taken and within which the analysis must be tested. Indeed, I propose to apply some of the principles of word structure to what I term 'pieces' or combinations of words."[5]

Phonological phenomena connected with word junction and with phrases and sentences as a whole are to be stated in prosodic terms also, Firth maintained.

Second, Firth rejected his earlier assumption that within specific general contexts, sounds are to be grouped together into one phonological entity on the basis of complementary distribution. Rather, if some of these environmentally conditioned sounds exhibit features which can be said to be characteristic of the environment in which they occur, then these features should be "abstracted out" as prosodic features of the whole context. Thus:

"We are accustomed to positional criteria in classifying

phonematic variants or allophones as initial, medial, intervocalic, or final. Such procedure makes abstraction of certain postulated units, phonemes, comprising a scatter of distributed variants (allophones). Looking at language material from a syntagmatic point of view, any phonetic feature characteristic of and peculiar to such positions or junctions can just as profitably, and perhaps more profitably, be stated as prosodies of the sentence or word."[6]

Taken to its logical conclusion, any phonetic feature which is in any way contextually determined may be considered a prosody; or viewed in another way, prosodic analysis may be viewed as a notational convention for indicating context-dependent phonological rules. Firth himself apparently did not notice that this was the case, but others of the London school have not only noticed it, but sanctioned it; thus F.R. Palmer, in his discussion of palatalization in various Ethiopian Semitic languages remarked:

"A statement may be made in prosodic terms, for the feature [palatalization] is prosodic in the sense that it affects the analysis of more than a single segmental unit."[7]

In fact, Firth and others have used the terms "prosody" and "(governed by) rule" interchangeably, and this observation, more than anything else, confirms the fact that prosodic analysis is nothing more than a notational convention for indicating rules. For example, Firth listed as one of the prosodies of Egyptian Arabic "the position, nature, and quantity of the prominent",[8]

But he also asserted that the position of the prominent can be predicted by rule:

"In the above [Egyptian Arabic] words the prominent is marked by an accent. This is, however, not necessary, since prominence can be stated in rules without exception, given the above analysis of syllabic structure."[9]

As Firth formulated it, and as it has been generally practiced within the London school, prosodic analysis (following standard practice, we shall use the term "prosodic analysis" to mean "Firth's phonological theory involving analysis of phonetic features into prosodic and phonematic units") has followed the following two principles: (i) no assumptions are made concerning phonological universals; features are assigned to prosodic or phonematic units ad hoc, depending upon the language, and (ii) the analysis involves nothing more than a classification of phonetic data to these systems. The following hypothetical analysis illustrates what we may consider to be orthodox London school principles.

Let L be a language in which the vowel of the penultimate syllable is long when it precedes a voiced consonant, and otherwise either long or short. In this language, we may associate with word-final position (or alternatively with the position occupied by the consonant following the vowel of the penultimate syllable) a

prosody having two "terms", $\underline{v}$ and $\underline{\bar{v}}$. Associated with $\underline{v}$ are the phonetic features (i) voicing of the consonant following the penultimate vowel and (ii) length of the penultimate vowel. Associated with $\underline{\bar{v}}$ is simply voicelessness of the consonant following the penultimate vowel. Occupying the phonematic position corresponding to the vowel of the penultimate syllable is a unit which is not designated for length in case the prosodic term $\underline{v}$ occurs in the word (since the length of that vowel is associated with the prosody). The following consonant is also not designated for voicing, since voicing is a property of the prosody consisting of the terms $\underline{v}$ and $\underline{\bar{v}}$, and by hypothesis, all words are "marked" as having this prosody.

The context-sensitive rule corresponding to this prosodic statement is simply:[10]

$$\begin{bmatrix} +\text{voc} \\ -\text{cons} \end{bmatrix} \longrightarrow [+\text{long}] \;/\; \text{---} \begin{bmatrix} +\text{voi} \\ +\text{cons} \end{bmatrix} C_o \; V \; C_o \; \#$$

It will be noted that in our proposed prosodic analysis, both the feature specified as a consequence of applying the rule and certain features of the environment were indiscriminately lumped together as "exponents" of the prosody. This, as we shall show in the next chapter, is a general characteristic of prosodic descriptions.

It is generally left up to the ingenuity of the interpreter to determine, from a given prosodic statement, what is the set of rule-governed features and what is the set of conditioning features; this is especially so in the case of the work of such practitioners as R.K. Sprigg, and to some extent W.S. Allen, who insist that prosodic analysis is an alternative to an analysis which states rules, rather than simply a notational restatement of such an analysis.[11]

Elements which are given phonematic status in a prosodic analysis consist of those phonetic features whose occurrence is not context-dependent, or to be more precise, whose occurrence is not governed by constraints found outside the segment which they occupy. As far as I know, only W.S. Allen has raised the theoretical question of whether features whose occurrence depends on simultaneously occurring features should be considered prosodic (that is, predictable by rule). In his paper, 'Aspiration in the Hārautī nominal', he remarked:

"It will have been noted that the phonological statement here proposed specifies [voice] as one of the exponents of phonematic units symbolized r, l, n, m, ṛ, ḷ, ṇ, w, v, y, or as a coarticulatory exponent of a prosodic unit referred to their place (and similarly [voicelessness] as an exponent of units symbolized s). It might be objected, particularly by proponents of the 'distinctive-feature' technique, that certain other

coarticulated data allotted to such units (e.g. nasality, laterality, flap; friction) invariably imply voice (or voicelessness); and hence that, these other data having been described in the statement of exponents, the inclusion of [voice] or [voicelessness] is 'redundant'."[12]

If we view Allen's notational decisions as embodying assertions about the validity of how to represent the phonological structure of language, he is then making the assertion that context-free phonological rules, say of the type:

[+nasal] --> [+voi]

are not allowed in linguistic description, whereas context-sensitive rules are allowed. Clearly this contention is formally unmotivated; no reason of a formal nature can be given to exclude automatically context-free phonological rules but permit context-sensitive ones, and furthermore the contention results in a much less adequate description, since obvious generalizations about language are being missed. It is true that Allen did go on to say that an alternative prosodic formulation is possible which incorporates a "general statement ... regarding this implication, thus avoiding the necessity for specifying [voice] or [voicelessness] on each occasion,"[13] but he did not consider the issue serious enough to indicate what this reformulation would look like.

It should be apparent from this discussion that, aside from certain small differences, Firth's prosodic analysis is identical with what has become to be known in America as "long-component" analysis, where we consider long components to be the counterpart to prosodies, and the features which remain upon extraction of the long components to correspond to phonematic units. It will be noted that the objectives of long component analysis are very similar to the objectives of prosodic analysis, namely to provide a notation in which context dependent features are segregated from context independent ones, where, roughly speaking, the former are written over or under the line, and the latter are written on the line. Harris, in 1944, stated the objective as follows:

"In our second operation we consider the usual type of limitation of distribution, in which a phoneme that occurs in most environments is limited by never appearing in certain positions. Here no solution is possible within the methods of segmental phonemics. The difficulty with the archiphoneme device, and with the statements about distributional relations between phonemes, is that they seek only to find a relation or common factor among the phonemes that can or cannot occur in a given environment. But there also exists a relation between the phonemes which occur in a given environment and the environment itself, namely the fact that they occur next to each other. That relation exists, for instance, between English /ŋ/ and /k/, but not between /ŋ/ and /t/. If we are willing to break phonemes up into simultaneous components, we restate relation as a factor common to /ŋ/ and /k/ but not to /t/; and we say that /ŋ/ and /k/ each contain a

certain component (ay, back position) and that this component spreads over the length of two phonemes when the first is nasal ... By the use of components which are defined so as to extend over a number of phoneme places, we thus circumvent the limitation in distribution of the phonemes. This is not merely a trick, concealing the limitations of the phonemes in the definitions of the components. For the components are generalized phonemes: they appear concurrently with each other as well as next to each other, and they may have a length of several phoneme-places as well as of one phoneme-place."[14]

The objective is similarly defined in Harris's book Methods in structural linguistics.[15]

The nearly complete identity of the objectives of prosodic analysis and long component analysis cannot be stressed too strongly, in view of the fact that members of the London school have long made it a point to assert the superiority of their phonological theory to contemporary American phonological theory. It turns out, however, that their criticisms have almost always been directed at strictly segmental phonology and distributional analysis -- precisely those aspects of American phonological theory which Harris just as effectively criticized in 1944, long before any of theirs had appeared. Again, only Allen has attempted a criticism of long component analysis from the point of view of prosodic analysis;[16] this fact alone makes Allen's paper 'Aspiration in the Hăuti nominal', in which the criticism appears, perhaps the most important

single paper from a theoretical point of view to come out of the London school. Allen first criticizes Harris's long component analysis because it identifies long-component features (context-dependent ones) with segmental features which are not context-dependent, when they are, in fact, the same feature:

"The term [domain] has previously been used by Z. Harris in his discussion of 'phonemic long components' (Methods in Structural Linguistics, pp. 125 ff.), which contains certain suggestions tending towards a prosodic approach; Harris's method is, however, entirely unprosodic in its phonemic presuppositions, which lead to such pseudo-problems as that admitted on p. 132, n. 7: 'One of the major difficulties in deciding whether to extract a component is the requirement that if we extract a component from the sequence /XY/ by saying that it equals /WU/, we must extract it from /X/ and from /Y/ even when they are not in the sequence'."[17]

It is difficult to see why Harris should have been criticized for this convention; if carried through consistently, it provides for an analysis of each segmental phonological unit of a language into those features which are also relevant to statements of context dependencies,[18] and this is certainly a commendable goal, since it enables one to state generalizations of the type missed by Allen (see above, p. 123). It may be noted further, that prosodies have been defined by R.M.W. Dixon in such a way that they are precisely the same thing as Harris's long components: "Prosodies need not be delimited in statement,

that is either their beginning or their end or both need not be explicitly noted; they can be associated with any extent of phonological 'text' (the minimum extent being a single phoneme)."[19]

Allen also criticizes the approach for starting from a phonemic analysis, rather than relating directly to the phonetic level. But since Harris's phonemic analysis stands in a biunique relationship with the phonetic level, the only possible consequence that starting from the phonemic rather than the phonetic level can have is that certain allophonic features will not turn up as long components, whereas they may turn up as prosodies in a prosodic analysis. Since in any event the features will be the same, the difference is purely notational.

One further theoretical issue raised in Allen's paper requires comment; that is the issue of whether a "simultaneous allotment of any given phonic data to both phonematic and prosodic units" should be permitted.[20] Allen suggested as a natural convention that it should not be permitted, whereas Firth maintained that it should:

"It is ... quite likely that certain phonic details may be included in the phonetic characteristics of prosodic elements and structures as well as in those of phonematic units and systems. There are, so to speak, two distinct 'syndromes' and there is no tautology or falsification if there is some overlap in 'symptoms'."[21]

We can illustrate this issue easily by means of our hypothetical analysis of language L (above, pp. 120-121); in fact our analysis embodies Allen's convention, which says, for instance, that vowels in the context --- $[^{+voi}_{+cons}]\ C_o\ V\ C_o\ \#$ are not phonematically indicated for length. Firth's convention permits that vowel to be phonematically long, so that the application of the rule given on p. 121 above may be vacuous. Thus the issue comes down to whether or not the rules embodied in the prosodies may have vacuous application or not.

Because of the classificatory nature of prosodic analysis (that is to say, all it permits is the "allotment" of phonetic data to phonological systems), it prohibits the specification of penultimate vowels preceding voiced consonants in language L to be phonematically specified as short. As a consequence of this restriction (common to both prosodic analysis and long component analysis), the rule on p. 121 is not permitted to change the underlying feature specification of the affected vowel. To see what effects this restriction entails, let us suppose that in language L, monosyllabic suffixes may be added to stems (which may also function independently as full words). In particular,

let [tak] be such an affix, which when added to [pa:ta] yields the form [pa:tatak]; when added to [pata] yields [patatak], but when added to [pa:da] yields either [pa:datak] or [padatak], with two different meanings, corresponding to two different meanings associated with the form [pa:da]. A natural solution in long-component terms is to say that /$\overline{\text{pata}}$/ [pa:da] (where the superscript bar is the long-component corresponding to the prosody v) represents two homophonous morphemes, one of which has the morphophonemic alternant /pa:da/ when it occurs before /-tak/, and the other the alternant /pada/ when it occurs before /-tak/. However, since the London school has rejected the morphophonemic level, this recourse is not open to them. They are obliged to say that the forms [pa:datak] and [padatak], which would presumably be written pa:d$\overline{\text{aTak}}^{\text{v}}$ and pad$\overline{\text{aTak}}^{\text{v}}$ respectively (see fn. 10), are completely unrelated to the form [pa:da], which would be transcribed pATa$^{\text{v}}$, or if Firth's convention is adopted, alternatively, pa:Ta$^{\text{v}}$, pAda$^{\text{v}}$, or pa:da$^{\text{v}}$, depending upon the whim of the analyst. It is one of the most curious facts about Firth's position that he took pride in the fact that he is obliged to consider such forms unrelated, maintaining gladly the

doctrine that:

"It is unnecessary, indeed perhaps inadvisable, to attempt a structural and systemic account of a language as a whole. Any given or selected restricted language ... is, from the present point of view multi-structural and polysystemic."[22]

If, on the contrary, we permit rules to change underlying feature specifications; in particular, if we allow the rule on p. 121 to apply to vowels distinctively indicated as being either long or short, then if we write the two morphemes which are both pronounced [pa:da] as pa:da and pada respectively, the rule automatically accounts correctly for the pronunciation of all the forms which we have cited, without recourse to any additional morphophonemic statements, or to saying that obviously related forms are phonologically unrelated. Similarly, if language L also contained a suffix [dak], this rule would correctly account for the forms [pa:da:dak] (corresponding to [pa:datak]) and [pada:dak] (corresponding to [padatak]), whereas an additional morphophonemic statement would be required in the long component analysis, and a third unrelated system would have to be supposed in the prosodic analysis.

London school analysts have advanced one other argument in support of their contention that prosodic

analysis is superior to any contemporary American phonological theory based on segmental phonemics; namely that since prosodic analysis permits the statement of grammatical environments as part of the prosodies (or as part of their domain), any phonological phenomenon which is conditioned on the basis of grammatical categorization and the like can be handled directly in a prosodic description, whereas in a phonemic description, which insists on segregating the phonological facts from the grammatical ones, it cannot be directly handled. This argument has been most clearly formulated by R.H. Robins in his 'Vowel nasality in Sundanese: a phonological and grammatical study'.[23] Robins maintained:

"[the] feature of vowel nasality could be treated phonemically, and the same phonetic observations accounted for."[24]

But any phonemic analysis would be obliged to treat vowel nasality as phonemic, because it is partially grammatically conditioned, and such near minimal pairs as [mãrios] and [mãriăk] may be attested. The nasalization of the second vowel in [mariăk] can however be predicted, once one knows the grammatical composition of the word. Robins concluded from this that the prosodic analysis

which he proposes is superior to a phonemic analysis because he predicts all instances of vowel nasalization directly. Robins's argument succeeds, however, only against a phonological theory which maintains that the only permitted phonological representation is the phonemic one. However, no American phonologist has ever maintained that position; it has always been maintained that a morphophonemic level of representation is also required, and there would be no difficulty in predicting phonemic vowel nasality in Sundanese on the morphophonemic level. To show that his analysis is superior to a phonemic plus a morphophonemic analysis, in which morphophonemic vowel nasality is predictable, Robins is required to show that the introduction of a phonemic level results in a complication of the statement of the phonological rules embodied in his description. This he does not do, and it can in fact be shown that there is a phonemic solution for which it cannot be done.[25]

In a recent article, however, Robins has admitted that a prosodic analysis may be supplemented by a phonemic analysis for the purposes of providing a "reading transcription", presumably at no extra cost. He remarked, in connection with E.J.A. Henderson's description of

Siamese:[26]

"This article also shows the very different end result of a prosodic analysis as contrasted with a phonemic transcription. The prosodic analysis of a text or stretch of utterance can be diagrammed, but not transcribed. The diagram can be interpreted and reveals the syntagmatic, structural relationships of the elements involved; it does not produce a 'reading transcription', for which a phonemic type of procedure will always be necessary."[27]

Much the same point has been made by Palmer.[28]

The question which immediately arises is what the conditions are which the prosodic "diagram" must meet. On this question, Firth had little to say beyond remarking that it must not be unidimensional.[29] The usual conventions which have been adopted are that a position in the phonematic sequence is designated for each prosody (called its "focus"), and also its extent of realization over the sequence (called its "domain"). However, a consistent use of notational conventions has not been adopted within the London school, and there are instances in the literature of spurious notational simplifications being paraded as genuine economy of description. Perhaps the most notable instance of this is provided by A.E. Sharp in his discussion of tone in disyllabic nouns in the Chaga language of East Africa.[30] After showing that disyllabic nouns may be categorized into nine tonal

classes, Sharp proposed as a phonological analysis that each disyllabic noun of the language be labelled with an integer from one to nine, depending upon which tone class it belongs to. He then proceeded to proclaim the superiority of his analysis over any possible "tonemic"one, precisely because the tonemic statement would have to indicate a great deal of tonal sandhi, whereas his solution is elegantly simple, requiring only nine invariant symbols!

Despite the fact that London school phonologists have been quite articulate in their criticisms of other phonological approaches, they have had surprisingly little to say concerning the criteria for evaluating phonological descriptions, in particular their own. Firth has proposed as a general condition on linguistic descriptions, in particular phonological descriptions that it "renew connection" with phonetic and situational facts,[31] but it is not clear what is meant by this condition. R.K. Sprigg's interpretation of it, for phonology, was simply that the description should ensure that it is, in fact, related to reality! Thus,

"Since all abstractions at the phonological level, whether prosodic or phonematic, are stated through the medium of <u>ad hoc</u> systems, and the value of each term

in a system is in proportion to the total number of terms in that system; it is clear that phonological symbols are purely formulaic, and in themselves without precise articulatory implications. In order therefore to secure 'renewal of connection' with utterances, it becomes necessary to cite abstractions at another level of analysis, the Phonetic level: abstractions at the Phonetic level are stated as criteria for setting up the phonological categories concerned, and as exponents of phonological categories and terms."31

Another interpretation has been given by Robins, namely that the phonological analysis established on the basis of a finite corpus should prove adequate also to handle data not used in the establishment of the analysis:

"In spoken utterance, sounds and the attributes of sounds are the exponents of elements of structures. The converse relation to exponency is 'renewal of connection', by which analyses are tested and justified. When structures and systems have been set up for a language, or some definable part of a language, on the basis of a limited body of material with the assumption that this is a typical sample, the analysis is tested and used in application to further material of the same sort and from the same language, and if exponents can be found for the elements of the structure that has been posited, the analysis is said to renew connexion with the language."32

But even under Robins's definition of "renewal of connection", London school phonologists have generally claimed the right to declare in advance that they will only consider a restricted part of a language in their description, and that linguistic evidence from outside this "language under description" has absolutely no bearing on this description, even though

that evidence is from the same language. A typical expression of this "right" has been made by Palmer:

> "It is not required that the exponents of gemination shall be the same for all types of plural, or that the differences shall be accounted for by a phonological 'explanation', and, still less, that the phonological analysis shall be integrated with the analysis of other, unrelated data [of the same language]."[33]

As long as this right is insisted upon, critical discussion is seriously hampered. The point of view that will be insisted upon here is, of course, that all linguistic data are relevant, both in a description of a particular language, and in a study of universals.

3. Throughout this later period, Firth maintained intact his understanding of the notion "meaning" as first expressed comprehensively in 'Technique of semantics'. He devoted his paper 'Modes of meaning'[34] to going over approximately the same ground. In this later paper, however, one of the five dimensions of meaning, the lexical dimension (or mode) received much greater attention, and the meaning that was supposedly contributed by this mode was also given a new name: "meaning by collocation".[35] The following extended citation will give a fairly accurate picture of what Firth had in mind concerning this notion:

"This kind of study of the distribution of common words may be classified into general or usual collocations and more restricted technical or personal collocations. The commonest sentences in which the words horse, cow, pig, swine, dog are used with adjectives in nominal phrases, and also with verbs in the simple present, indicate characteristic distributions in collocability which may be regarded as a level of meaning in describing the English of any particular social group or indeed of one person. The word 'time' can be used in collocations with or without articles, determinatives, or pronouns. And it can be collocated with saved, spent, wasted, frittered away, with presses, flies, and with a variety of particles, even with no. Just as phonetic, phonological, and grammatical forms well established and habitual in any close social group provide a basis for the mutual expectancies of words and sentences at those levels, and also the sharing of these common features, so also the study of the usual collocations of a particular literary form or genre or of a particular author makes possible a clearly defined and precisely stated contribution to what I have termed the spectrum of descriptive linguistics, which handles and states meaning by dispersing it in a range of techniques working at a series of levels ... Meaning by collocation is an abstraction at the syntagmatic level and is not directly concerned with the conceptual or idea approach to the meaning of words. One of the meanings of night is its collocability with dark, and of dark, of course, collocation with night."[36]

Elsewhere, Firth maintained that to say that part of the meaning of a word is given by its possible collocations is the same as saying that "the meaning of words lies in their use."[37] Firth took these words from Wittgenstein,[38] indicating that he understood Wittgenstein to mean by this remark that the meaning of words is given by their strictly linguistic context.

Firth's proposals for studying words in lexical

contexts amount, however, not to assertions about semantics, but about stylistics, and even as such, they are not particularly suggestive ones. They fail to distinguish, for example, stylistically neutral expressions, or clichés, from genuine idioms, since they both meet the condition that they consist of words which appear in habitual collocation in the speech or writing of a given individual or social group. The distinction between them, however, is a crucial one for both stylistics and semantics; for stylistics, because presumably a person can make effective use of an idiom, but not of a cliché (except perhaps in a pun), and for semantics, since idioms must be considered as being themselves lexical items (although they are composed of smaller ones), whereas the meaning of cliches is given by composition from the meanings of its component lexical items.[39]

The fact that Firth's proposals concerning collocation are proposals about stylistics rather than semantics has been regognized and admitted by members of the London school. Thus Robins:

"It may be surmised that part of what is loosely and generally called style in literature depends on the skilful exploitation and variation of possible and habitual collocations in the language employed. A good deal of Firth's 'Modes of Meaning' is concerned with the stylistic analysis, in terms of collocations,

of two very different examples of literary English."[40]

W. Haas, on the other hand, has suggested that the notion meaning by collocation of a lexical item be interpreted as the distributional properties of that item in the sentences of the language of which it is a part:

"Both, form and meaning, are obtained by the same method of substitution: the form of a sign by substituting _in_ it, the meaning by substituting _for_ it ... substitutions for _cat_, in more comprehensive units such as _The --- caught the mouse, I bought fish for my ---_, etc., display its meaning; its privilege of occurring in those contexts with a certain distribution of frequencies among the occurrences, _is_ the linguistic meaning of _cat_. The distinctive elements of _cat_ are its form; its being itself a distinctive element is its meaning."[41]

The impossibility of characterizing the meaning of lexical items by means of their distributional properties can, however, be shown by means of a slight modification of an argument used by Y. Bar-Hillel to prove the impossibility of morpheme _identification_ by distributional means.[42] If Haas means us to take as the set of defining contexts the totality of all possible sentences of a language, such as English, then the distribution of such morphemes as _green_ and _red_ "within this totality is _almost_ exactly the same, i.e. the same up to a subset of special environments which will cause trouble to any consistent and would-be simple description."[43] Their "distribution of frequencies among

the occurrences" will also be identical; each occurrence will be associated with a frequency which is indistinguishable from zero. If, on the other hand, Haas means us to take as the defining contexts the totality of sentences which have been uttered up to a particular point, say the present, then each new utterance changes the meaning of one or more lexical items of the language, and to effect a really drastic change in meaning, all one has to do is repeatedly utter the same sentence for a long period of time.

Any formulation which, like Firth's or Haas's, attempts to assign meaning to lexical items on the basis of their occurrence in utterances, is actually approaching the problem of semantic description backwards. Consider Firth's example of dark night. Firth was in effect arguing that given this phrase, with some determinate meaning, we can then say something about the meaning of each word. The goal of semantics, rather, should be to show how the meaning of such phrases as dark night is determinable from a knowledge of the meaning of the lexical items comprising them, and the syntactic relationships which are found in them. Once this goal is set, then the question of what the

optimal means for representing the meaning of lexical items can be intelligibly raised.[44] With this approach to semantics, one is able to speak of general rules which amalgamate the meaning of nouns and adjectives to yield the meaning of noun phrases; of verbs and their complements to yield the meaning of verb phrases, and of subjects and predicates to yield the meaning of sentences. Any attempt to determine the meaning of lexical items by collocation in phrases cannot take advantage of the regularities of the language, such as the grammatical composition of noun phrases, but is obliged to state meanings ad hoc for each collocation.

Firth's proposals for dictionary making are of interest in connection with his concern with meaning by collocation. Firth suggested the following procedures for lexicography: first collect "exhaustive collocations of the selected words", and then proceed as follows:

> "It will then be found that meaning by collocation will suggest grouping of the collocations into a manageable number of sets.
>
> Each set of grouped collocations may suggest an arbitrary definition of the word, compound or phrase which is being studied in collocation.
>
> If the materials are being collected from informants, definition texts may be recorded [emphasis mine]

by them in their own language, as their own version of the meanings, group by group. Definition texts provided in this way can be extremely informative, but must be critically handled.

Draft entries can now be made, one for each group, definitions can be given and from the collocations one or two may be chosen to become citations keyed to the definitions."[45]

For Firth to say that certain collocations have greater semantic significance than others, and deserve the status of "definition texts" certainly begs the question, if meaning by collocation depends solely on the study of actualloccurrence in collocation. His belief that certain collocations are more significant than others betrays,, in fact, that Firth covertly presupposed that lexical items have inherent meanings, of which definition texts are simply paraphrases.

We may remark in conclusion that it is Haas's formulation of meaning by collocation which has been adopted by the group of linguists currently at Edinburgh,in their formulation of linguistic theory, and the same criticism which we made against Haas carry over without modification against, say, Dixon.[46]

4. During this later period of Firth's work, neither he nor his colleagues in the London school made any substantive theoretical contribution to the study of syntax or morphology, and as we have already remarked

(above, p. 116, and fn. 2), practically no further work was done on refining the notion "context of situation". Only an article by T.F. Mitchell[47] can be cited as an instance of an attempt to describe the meanings of words in terms of context of situation, but upon examination of this paper, it will be seen that it properly belongs to the realm of ethnography, and not semantics.

In syntax, Postal has shown that the grammatical theory of M.A.K. Halliday amounts to a slot-and-filler variety of phrase structure description,[48] and the same can be said of the much earlier theoretical proposals by Robins.[49] It would seem that Firth himself held, if anything, a weaker view of syntax, namely that it is finite-state. The only means one has for evaluating Firth's view of syntax is to study the terminological suggestions he made for its study, since he published no syntactic descriptions during his lifetime.

The most important term which Firth proposed for the study of syntax is <u>colligation</u>; in his 'Synopsis of linguistic theory', he introduced the term as follows:

"The statement of meaning at the grammatical level is in terms of word and sentence classes or of similar

> categories and of the inter-relation of those categories in colligations. Grammatical relations should not be regarded as relations between words as such -- between watched and him in 'I watched him' -- but between a personal pronoun, first person singular nominative, the past tense of a transitive verb and the third person pronoun singular in the oblique or objective form."[50]

Thus, Firth defined the notion "colligation" as playing the same role in syntax as "collocation" plays in lexicography, despite Firth's later claim that "A colligation is not to be interpreted as abstraction in parallel with a collocation of exemplifying words in a text."[51] The reason for Firth's claim is that he considered that elements in colligation may be discontinuous. But it turns out that Firth's proposals for handling discontinuous constituents does not do real violence to the parallel between collocation and colligation; these proposals amount to considering discontinuous constituents, such as concord elements, to be the grammatical analogues of prosodies:

> "The various structures of sentences in any given language, comprising for example at least two nominal pieces and a verbal piece must be collated, and such categories as voice, mood, affirmative, negative, tense, aspect, gender, number, person and case, if found applicable and valid in descriptive statement, are to be abstracted from, and referred back to the sentence as a whole. The exponents of the categories may be cumulate or discontinuous or both, and their phonetic description may necessitate the use of terms and notation not based on orthography or, indeed, on any scheme of segmental letters in the tradition of the roman alphabet."[52]

Viewed in this way, discontinuous constituents can be considered to be exponents of "sentential long components" imposed on a linear, Markovian array of grammatical categories.

In 'Synopsis', Firth also discussed two other technical terms for syntax, order and sequence, which he related in the following puzzling way:

"The statement of the colligation of a grammatical category deals with a mutually expectant order of categories, attention being focussed on one category at a time. If two or more categories are in the focus of attention, the study of their colligations is in similar mutually expectant orders. Such categories are not considered as having positions in sequence, but can be said to be placed in order."[53]

It is not clear what Firth intended to mean by this statement; possibly order can be interpreted at the relationship between linearly colligated grammatical categories and the sentential long components, and sequence as the physical linear order of sentences as they are spoken or written. In 'Structure and system in the Abaza verbal complex', Allen gives a different, and much deeper interpretation of the difference; for a discussion of his use of the terms, see below Chapter V, section 5. Until substantive work in syntax is published by the London school, final judgment will have to be withheld concerning

the adequacy or lack of it of their theory of grammar; hopefully the forthcoming An outline grammar of spoken English by M.A.K. Halliday and J. McH. Sinclair will help to fill this gap.

In morphology, the London school has produced at least two important descriptive works, one by R.H. Robins on Sundanese[54], and the other by F.R. Palmer on Tigre[55], but both of these works are strictly within the item-and-arrangement descriptive framework already well-established in American morphological descriptions.

5. Firth and his colleagues have explicitly rejected the validity of universal grammar, or indeed of universal phonology; one of Firth's strongest criticisms of Malinowski was the latter's assumptions concerning universal grammar.[56] In phonology, Firth stated that the phonematic and prosodic units should be "systematically stated ad hoc for each language"[57]; yet, as A.A. Hill has pointed out, he seemed to be of the opinion that the more that could be prosodically described, the better Firth would like it.[58] Sounds which Firth said could be expected to be involved as exponents of prosodies included liquids, nasals, semi-vowels, the

Semitic laryngeals, the glottal stop, schwa, and h.[59]

A remark which reveals that Firth really had a universalist bias is the following:

"Such common phenomena as elision, liaison, anaptyxis, the use of so-called 'cushion' consonants or 'sounds for euphony' are involved in this study of prosodies."[60]

Firth's argument that phonological systems must be stated ad hoc for each language would appear to consist of two points: (i) that the phonological features necessary to categorize particular phonematic or prosodic units may differ from the set of features which are needed to categorize other phonematic or prosodic units either in the same language or in different languages, and (ii) the particular phonetic exponents associated with a particular phonematic or prosodic unit may differ. The first point, however, is a truism, and if the phonological features themselves are taken to be universals, it has no bearing on the question of universal phonological categories. Similarly, the second point has no real bearing on the question. Consider, for example, a language in which a particular phonological feature which, when associated with bilabial or alveolar plosives is realized as voiced implosion (i.e. [ɓ] and [ɗ]), when associated with the velar plosive is realized as voiceless glottalization, [k$^{ʔ}$],

and with the alveolar sibilant, voiceless affrication, [ts]. A feature having these characteristics has been described by J. Carnochan in his discussion of Hausa, and he chose to call it 'glottalization".[61] It is perhaps true that there is no other language in the world, in which a feature which may be called glottalization has these particular phonetic realizations, yet this does not mean that we cannot identify glottalization as a universal phonological feature. It simply means that the rules for implementing the pronunciation of elements classified with the same feature in two different languages may be different, a point made painfully obvious by Sapir in his 'Sound patterns in language.'[62]

Firth's arguments against syntactic universals fail for about the same reasons. His major argument seems to have been simply that since the meaning of grammatical categories differs from one language to another, no substantive identification of the categories is permissible. But since he never provided any clear account of what grammatical meaning <u>is</u>, it is difficult to take this argument very seriously. The following citation is typical of the totally cavalier statements which Firth made on the subject of "grammatical meaning":

"The present writer illustrates what is termed 'grammatical meaning' by concocting such sentences as 'My doctor's great grandfather will be singeing the cat's wings', or 'She slowly rushed upstairs to the cellar and turned the kettle out to boil two fires.'"[63]

Firth was, however, unwilling to accept the logical consequences of the denial of universal grammar; namely the complete abandonment of the conceptual and terminological tradition of grammar, which had been built up over the preceding two millennia:

"Every analysis of a particular 'language' must of necessity determine the values of *ad hoc* categories to which traditional names are given."[64]

But then the question arises: which names go with which categories? There are only two possibilities: (i) they are assigned at random, or (ii) they are assigned on the basis of universal grammar. It is doubtful that Firth would seriously have maintained (i), so that by refusing to give up the traditional names, it seems that he in fact failed to renounce universal grammar. This same argument holds for Halliday's putative rejection of universal grammar:

"The 'structural' linguist, while attempting to develop descriptive methods that are general ... will be unwilling to claim universality for any formally established category; since, while, for example, it may be convenient in the description of all languages so far studied to give the name 'verb' to one class of one unit, this is not a universal statement: the 'verb' is redefined in the description of each language."[65]

Robins, however, has admitted that the substantive identification of the categories "noun" and "verb" in

different languages is more than a terminological convenience, and the argument he gave to prove this point is precisely an argument for believing that they are universal grammatical categories:

"... grammatical analysis in terms of a basic distinction of nominal and verbal categories succeeds in new fields and stands critical examination in the older areas of language study where so much else of traditional grammar has had to be abandoned."[66]

**NOTES**

1. 'Levels' analysis: J.R. Firth's theories of linguistic analysis (Part II)' Journal of the Canadian Linguistic Association 6 (1961), pp. 186-191.

2. For example, in connection with his concept of "context of situation", practically nothing of what he has to say in his later discussions of it in 'Personality and language in society' [1950], pp. 181-183, or in 'Synopsis of linguistic theory', op. cit., pp. 9-11, goes beyond what he had already said in 'Technique of semantics' in 1935. He remarked in 'Synopsis' (p. 9) that "No linguist has yet set up exhaustive systems of contexts of situation such that they could be considered mutually determined in function or meaning," as if this goal were readily achievable, when in fact, no one as yet has shown how even a single utterance can be semantically characterized by its context of situation. Similarly, Dixon's remark that "Theories at the interlevel of context can also be said to be at an earlier stage of development when compared to grammatical and phonological theories" (in Linguistic Science and logic ('s-Gravenhage, 1963), p. 48) misleadingly implied that the theory is developed at all. We may remark, incidentally that Dixon has followed Malinowski and Firth in making the context of situation a convenient dumping ground for people's knowledge about the world, their own culture, etc., giving the false illusion that such facts can be systematically used in characterizing how individuals supply semantic interpretations to sentences. If I understand his argument on p. 101 correctly, Dixon at one point maintained that it is a fact about "British Culture" that Englishmen know that milk is white.

3. 'Structure of the Chinese monosyllable', p. 91. There, the features were called "prosodic diacritics". Cf. E. Haugen's criticism of Firth's analysis, discussed above, pp. 105-106.

4. 'Sounds and prosodies', pp. 122-123.

5. Ibid., p. 122. 6. Ibid., p. 123.

7. ''Comparative statement and Ethiopian Semitic' Transactions of the Philological Society (1958), p. 129.

8. 'Sounds and prosodies', p. 130.

9. Ibid., p. 129.

10. This rule may be read as follows: any segment which is specified as being both vocalic and non-consonantal, if further specified as being long when it precedes a voiced consonant, which is followed by zero or more segments which are either consonantal or non-vocalic, a vocalic and non-consonantal segment, and zero or more segments which are either consonantal or non-vocalic, and a word-boundary. The symbol V is used as a "cover" symbol for true vowels (segments which are both vocalic and non-consonantal), and C for anything which is not a V (thus either a true consonant, liquid, or glide). Throughout this study, rules will be given in terms of phonological features, and we will generally follow the usage of R. Jakobson and M. Halle, Fundamentals of language ('s-Gravenhage, 1956). An integer subscript on a cover symbol or segment means that at least as many segments having the features designated as is indicated by the integer must occur in that position; thus $C_1$ means one or more non-vowels. An integer superscript means that at most that many segments may occur in the designated position; thus $C^1$ means at most one non-vowel. Therefore the symbol $C_1^1$ means exactly one non-vowel.

We may give as hypothetical words in language L the following: [pata], [pa:ta], and [pa:da]. The form *[pada] is of course excluded. The prosodic formulas for the three words may be written: $\underline{paTa}^{\bar{V}}$, $\underline{pa:Ta}^{\bar{V}}$, and $\underline{pATa}^{V}$, where T means an alveolar (say) plosive which is not specified for voicing, and A symbolized an open vowel which is not specified for length.

11. Allen's position will be discussed further below in Chapter V, section 3. Since Sprigg's work will not be discussed in Chapter V, we will give a characteristic statement illustrating his position here. It is not unfair, I think, to say that this is a statement that has to be seen to be believed: "A[nother] advantage of prosodic analysis is that it enables one to avoid the concept of assimilation ... There is a further obstacle in the way of applying the assimilation concept to the vowel-harmony material presented in this article. This concept would seek to require an assimilator and an

assimilee. Thus, the vowel ɛ of the assimilee Syllable thɛmbɔ 'he smoked', would be said to have been replaced in thingi- 'he smokes' by the vowel i under the influence of the vowel i of the following assimilator Syllable gi. In this example the assimilation relationship is of the type assimilee-assimilator. In, for example, simbe: 'did you catch', on the other hand, the relationship is of the type assimilator-assimilee: the vowel ɛ of the assimilee Syllable bɛ: would be said to have been replaced by the vowel e under the influence of the vowel i of the preceding assimilator Syllable sim. Difficulties arise when both Syllables of the assimilation are of the same type: assimilee-assimilee, e.g. dɛ:bɛ: 'did you stay'; or assimilator-assimilator, e.g. simgi-, 'he will catch'. Where both Syllables are assimilators, which is assimilated to which?" ('Vowel Harmony in Lhasa Tibetan: Prosodic analysis applied to interrelated vocalic features of successive syllables' Bulletin of the School of Oriental and African Studies 24 (1961), p. 137.)

12. In Studies in linguistic analysis, op. cit., p. 85.

13. Ibid.

14. 'Simultaneous components in phonology' Language 20 (1944). Reprinted in Readings in linguistics, op. cit., p.130.

15. Methods in structural linguistics (Chicago, 1951), chapter 10.

16. Firth made an oblique reference to Harris's long-components by criticizing a comparison of his techniques with Harris's which had been made by C.C. Fries and K.L. Pike, in 'Improved techniques in palatography and kymography [1950], p. 173.

17. 'Aspiration', p. 71.

18. Cf. Methods in structural linguistics, op. cit., pp. 147-149.

19. Linguistic science and logic, op. cit., p. 43.

20. 'Aspiration', p. 69.

21. 'Synopsis of linguistic theory', p. 15.

22. Ibid., p. 30.

23. In Studies in linguistic analysis, pp. 87-103.

24. Ibid., p. 95.

25. This is to say that Robins in particular, and the London school in general has failed so far to come up with an example which has the property that when a phonemic analysis is introduced between their "level" of analysis and the phonetic level, the overall description is necessarily complicated. So far, they have given no cases parallel to the one described by Morris Halle for Russian, in which he showed that the introduction of a phonemic level between his level of phonology (which may be called "systematic phonemics") and phonetics necessarily complicates the description. (cf. The sound pattern of Russian ('s-Gravenhage, 1959), pp. 22-23.)

26. E.J.A. Henderson, 'Prosodies in Siamese: a study in synthesis' Asia Major (n.s.) 1 (1949), pp. 189-215.

27. 'General linguistics in Great Britain', pp. 31-32.

28. 'Linguistic hierarchy', op. cit.

29. 'Sounds and prosodies', p. 138.

30. 'A tonal analysis of the disyllabic noun in the Machame dialect of Chaga' Bulletin of the School of Oriental and African Studies 16 (1954), pp. 157-169.

31. 'Junction in spoken Burmese' in Studies in linguistic analysis, p. 107. Sprigg's remark that the number of elements which may substitute for one another solely defines their value is characteristic of the "numerology" of the London school. Compare Firth's definition of "grammatical meaning" ('Synopsis', p. 22) "... grammatical 'meanings' are determined by their inter-relations in the systems set up for that language. 'A nominative in a four case system would in this sense necessarily have a different "meaning" from a nominative in a two case or fourteen case system, for example."

Similarly, R.H. Robins ('General linguistics in Great Britain'):p. 20): "Each system set up for a particular structural place is peculiar to that place, and

the commuting terms in it are not necessarily to be identified with those operative in a system at a different place. Where the number of commuting terms is different, the systems are different, and each term is different from its apparent counterpart elsewhere, because of the different paradigmatic relations necessarily holding between the terms of numerically different systems." One wonders what the consequences would have been if the corresponding views were held in nuclear physics for example.

32. 'General linguistics in Great Britain', p. 21.

33. 'Gemination in Tigrinya' in Studies in linguistic analysis, p. 147.

34. [1951], pp. 190-215.

35. Ibid., p. 194. 36. Ibid., pp. 195-196.

37. 'Synopsis', p. 11.

38. Philosophical investigations (New York, 1953), p. 80.

39. For such a view of semantics, see J. Katz and J. Fodor, 'The structure of a semantic theory' Language 39 (1963), pp. 170-210.

40. 'General linguistics in Great Britain', p. 24.

41. 'On defining linguistic units' Transactions of the Philological Society (1954), p. 80.

42. 'Logical syntax and semantics' Language 30 (1954), p. 233.

43. Ibid.

44. Cf. Katz and Fodor, op. cit.

45. 'Synopsis', p. 26.

46. R.M.W. Dixon, op. cit., pp. 43 ff.

47. 'The language of buying and selling in Cyrenaica: a situational statement' Hespéris (1957), pp. 31-71.

48. P. Postal, op. cit., pp. 97 ff.

49. 'Formal divisions in Sundanese' Transactions of the Philological Society (1953), pp. 109-142. Cf. his diagrams, pp. 122-123, which show that he was working with a phrase structure hierarchy consisting of sentences made up of clauses, clauses of phrases, and phrases of words.

50. 'Synopsis', p. 13. 51. Ibid., p. 14.

52. Ibid., p. 20. 53. Ibid., p. 17.

54. 'Nominal and verbal derivation in Sundanese' Lingua 8 (1959), pp. 337-369.

55. The morphology of the Tigre noun (Oxford, 1962).

56. 'Ethnographic analysis and language', p. 109.

57. 'Sounds and prosodies', p. 122.

58. 'Suprasegmentals, prosodies, prosodemes' Language 37 (1961), p. 468.

59. 'Sounds and prosodies', p. 131.

60. Ibid.

61. 'Glottalization in Hausa' Transactions of the Philological Society (1952), p. 93.

62. Language 1 (1925), pp. 37-51. Reprinted in Readings in Linguistics, op. cit., pp. 19-25.

63. 'Synopsis', p. 8. 64. Ibid., p. 21.

65. 'Some aspects of systematic description and comparison in grammatical analysis' in Studies in linguistic analysis, p. 57.

66. 'Noun and verb in universal grammar' Language 28 (1952), p. 296.

# CHAPTER V

1. In this chapter, we shall undertake a careful study of a selected group of phonological analyses published by members of the London school over the period 1949-1962. In this study, we shall attempt to make explicit the system of rules which is embodied in each of these descriptions. Wherever possible, potential inadequacies of each of these descriptions will be pointed out, especially in those cases where it appears that generalizations about the language are being missed in the description. The interpretability of some of these descriptions in long component terms will also be indicated.

The group of descriptions which has been selected for study here was chosen on the basis of their value for illustrating particular points and deficiencies of the prosodic approach, for their "accessibility" of interpretation, and for their intrinsic value as descriptions of the phonology of particular languages. In section 2, Henderson's description of Siamese will be considered;[1] in section 3, Allen's description of Sanskrit retroflexion;[2] in 4, Allen's description of the Hāṛautī nominal;[3] in 5, Allen's description of the Abaza verb;[4] in 6, Carnochan's description of Hausa;[5]

in 7, Robins's description of Sundanese vowel nasality;[6] in 8, Mitchell's description of accent in Arabic dialects;[7] in 9, Bendor-Samuel's description of Terena,[8] and in 10, various papers by Palmer,[9] Waterson,[10] and Carnochan,[11] dealing with vowel harmony.

2. Henderson's prosodic description of Siamese phonology was one of the earliest attempts by one of Firth's colleagues to exemplify his theory in an actual language study, and it has been referred to within the London school itself as "a typical type of phonological analysis on prosodic principles".[12] We have already commented upon Henderson's objective of achieving a "diagram" of the phonological relationships within Siamese (above, pp. 132-133), rather than a "reading transcription".

Henderson classified the prosodic features of Siamese into syllable-initial, syllable, word, and sentence prosodies, depending upon their domain. Her syllable-initial and syllable prosodies were set up to describe the distributional peculiarities of certain consonantal and vocalic features in the language, and as such may be viewed as long components. Henderson observed that the Siamese monosyllable can end

only in nasal consonants, unreleased voiceless stops, semi-vowels or vowels, while the inventory of possible syllable-initial features is much larger:

> "It will be seen that plosion, aspiration, affrication, friction, voice (except when accompanied by nasality), and the presence of the sounds r or l, are properties of a syllable initial only, and mark the beginning of a syllable when they occur. These features ... may be regarded as belonging to the prosodic system, while what is common to both syllable parts, initial and final, may be postulated as the consonantal system."[13]

The postulated consonant system contains the entities p,t,k,m,n,ŋ, and zero, and the syllable-initial prosodies (listed above) were considered as added componentially to these phonematic units to form the syllable-initial sounds; r and l were considered to be the features "rhoticization" and "laterality" added to the zero consonant. Not all combinations of the prosodic features are, however, found in the language, and to describe this fact, Henderson simply listed the combinations which are permitted. The resulting description was therefore simply an item-and-arrangement list of possible occurrences, and thus in a sense is weaker than a long-component description which defines the components in such a way that the non-occurring combinations are excluded in the definition of the components. We shall now give the context-sensitive "redundancy" rules corresponding to Henderson's analysis, and then give a long

component analysis of the consonant system of the monosyllable.

The "canonical" structure of the Siamese monosyllable may be expressed by the formula:[14]

$$([+\text{cons}])\ \left(\begin{matrix}[+\text{cons}]\\[-\text{voc}\ ]\end{matrix}\right)\ [+\text{voc}]\ ([+\text{voc}])\ ([+\text{cons}])$$

The second position in the monosyllable may be occupied by either a glide or a liquid. Therefore, we have the rule:[15]

$$1.\quad \left\{\begin{matrix}[+\text{cons}]\\[-\text{voc}\ ]\end{matrix}\right\} \longrightarrow \left\{\begin{matrix}[+\text{voc}\ ]\\[-\text{cns}\ ]\end{matrix}\right\} \;/\; [+\text{cons}]\ ---$$

The fourth position may be occupied by either a falling or a rising glide; curiously, Henderson treated the rising diphthongs as consisting of a vowel plus a prosody, but the falling diphthongs <u>ia</u>, <u>ɯa</u>, <u>ua</u> as unit phonematic units. The specification of these glides is given by the rules:

$$2.\quad [+\text{voc}\ ] \longrightarrow [+\text{diff}] \;/\; [{}^{+\text{voc}}_{-\text{diff}}]\ ---$$

$$3.\quad [{}^{+\text{voc}}_{-\text{diff}}] \longrightarrow [{}^{+\text{comp}}_{-\text{flat}}{}^{}_{+\text{grav}}] \;/\; [+\text{voc}\ ]\ ---$$

4. [+voc] --> [-long] / --- [+voc]

By rules 2-4, we express the facts that only rising glides occur after non-diffuse vowels, falling glides are back unrounded, and that vowel length is neutralized in diphthongs.

The restrictions on the final consonant of the monosyllable is given by the rule:

5. $\begin{bmatrix} +\text{cons} \\ -\text{nas} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{voc} \\ -\text{cont} \\ -\text{voi} \\ -\text{tns} \\ -\text{strd} \end{bmatrix} / \text{--- \#}$

Single initial consonants are restricted according to the rules:

6. $\begin{bmatrix} +\text{grav} \\ +\text{comp} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{voi} \\ -\text{cont} \\ -\text{strd} \end{bmatrix} / \underline{\quad} \begin{bmatrix} +\text{cons} \end{bmatrix} [+\text{voc}]$

7. $\begin{bmatrix} +\text{grav} \\ +\text{strd} \end{bmatrix} \rightarrow [+\text{cont}] / \underline{\quad} \begin{bmatrix} +\text{cons} \end{bmatrix} [+\text{voc}]$

8. $\left\{ \begin{matrix} [+\text{cont}] \\ [+\text{voi}] \end{matrix} \right\} \rightarrow [-\text{tns}] / \underline{\quad} \begin{bmatrix} +\text{cons} \end{bmatrix} [+\text{voc}]$

9. $\left\{ \begin{matrix} [+\text{cont}] \\ [+\text{strd}] \end{matrix} \right\} \rightarrow [-\text{voi}] / \underline{\quad} \begin{bmatrix} +\text{cons} \\ -\text{voc} \end{bmatrix} [+\text{voc}]$

Rule 6 specifies that there are no segments x,g, parallel

to s,f and to d,b. Rule 7 specifies that there is no pf parallel to č; rule 8 that there are no aspirated fricatives, nasals, liquids, or voiced stops, parallel to ph, th, čh, and kh, and rule 9 that there are no voiced fricatives or affricates. These rules actually account for the features which are redundant as a result of asymmetries in the consonantal inventory.

The following rules apply to initial clusters of consonant plus liquid or glide.[16]

10. $[+\text{cons}] \rightarrow \begin{bmatrix} -\text{voc} \\ -\text{cont} \\ -\text{voi} \\ -\text{strd} \\ -\text{nas} \end{bmatrix} / \#\text{---} \begin{Bmatrix} [+\text{cons}] \\ [-\text{voc}\ ] \end{Bmatrix}$

11. $[+\text{cons}] \rightarrow [+\text{flat}] \ / \ \# \begin{bmatrix} +\text{cons} \\ -\text{grav} \end{bmatrix}$ ---

12. $[-\text{voc}\ ] \rightarrow \begin{bmatrix} -\text{cons} \\ \alpha\text{grav} \end{bmatrix} \ / \ \# \begin{bmatrix} +\text{cons} \\ \alpha\text{grav} \end{bmatrix}$ ---

13. $[+\text{grav}] \rightarrow [+\text{comp}] \ / \ \# \begin{bmatrix} \text{-----} \\ +\text{cons} \end{bmatrix} \begin{bmatrix} -\text{voc} \\ -\text{cons} \end{bmatrix}$

14. $\begin{bmatrix} +\text{cons} \\ -\text{grav} \end{bmatrix} \rightarrow [-\text{tns}\ ] \ / \ \# \text{---} \begin{Bmatrix} [+\text{cons}] \\ [-\text{voc}] \end{Bmatrix}$

15. $\begin{bmatrix} +\text{cons} \\ -\text{grav} \\ 1 \end{bmatrix} \begin{bmatrix} -\text{cons} \\ -\text{grav} \\ 2 \end{bmatrix} \rightarrow \begin{bmatrix} +\text{voi}^{1} \\ +\text{strd} \end{bmatrix}$

Rule 10 specifies that only voiceless stops may precede a liquid or a glide; rule 11 that the sequences tl and thl are excluded; rules 13 and 14 that kw, khw,

and ty are the only combinations of consonant and glide which are found, and that thr is excluded, and rule 15 that ty is pronounced [ɟ].

The segment [ɟ] alternatively might be considered to represent a voiced counterpart to ɣ, in which case rule 9 would be simplified to:

9'. [+cont] --→ [-voi ].

This analysis would also make kw and khw the only consonant plus glide combinations in the language, suggesting the possibility that they might be treated as single segments, distinguishable from k and kh by, say, the feature of flatness. This decision would result in a simplification of the specification of the canonical structure of the monosyllable; we would be able to write it as:

$$[+\text{cons}]^2 \quad [+\text{voc}\ ]_1^2 \quad [+\text{cons}]^1.$$

One feature, flatness, however, would have to be added to the right-hand side of rule 10.

Following kw and khw, only the front vowels and a are permitted, so we require a rule:

16. $[+\text{voc}\ ] \quad \text{--→} \quad \left\{ \begin{matrix} [-\text{grav}] \\ [+\text{comp} \\ -\text{flat}] \end{matrix} \right\} \; / \; \left[ \begin{matrix} +\text{cons} \\ -\text{voc} \\ +\text{grav} \end{matrix} \right] \quad \text{---}$

The second element of rising diphthongs is restricted

according to the rule:

17. $[-\text{cons}] \rightarrow \begin{bmatrix} -\alpha\text{grav} \\ -\alpha\text{flat} \end{bmatrix} / \left[\begin{matrix} \alpha\text{grav} \\ [-\text{comp}] \\ [+\text{flat}] \end{matrix}\right] \underline{\quad} [+\text{diff}]$

The diphthongs iw, ew, ɯi, yi, uy, oy, etc, are permitted, as are both ay and aw. The second member of a diphthong is non-syllabic. Therefore,

18. [ ] --> [-voc ] / [+voc ] ---

The following long components are sufficient to handle the restrictions on consonant sequences in initial position: (i) a component $\overline{\phantom{xx}}$ defined as non-flatness and non-aspiration over initial consonant sequences beginning with an alveolar stop, (ii) a component $\overline{\overline{\phantom{xx}}}$ defined as sameness of gravity of initial sequences of consonant plus glide, and (iii) a component $\overline{\overline{\phantom{xx}}}^{**}$ defined as voiceless plosion and non-nasality defined over initial consonant clusters (having no effect on the second member). This same component, but without the restriction on nasality may be said to be associated with the end of the monosyllable.

Henderson's very brief description of tone in Siamese is also largely a description of redundancy features. Each syllable, with the restrictions to be noted below, may bear one of five tones, which may be roughly described

as mid level, low level, rising, falling, and rising-falling. These five tones may be distinguished by the three binary features low, rise, and fall. The restrictions on the occurrence of tone may be stated as:

19. $[+\text{voc}] \quad \text{--->} \quad \left\{ \begin{matrix} [-\text{rise}] \\ [-\text{fall}] \\ [+\text{low}\ ] \end{matrix} \right\} / \left\{ \begin{matrix} [\text{---}] \\ [+\text{long}] \\ [-\text{long}] \end{matrix} \right\} / \text{---} \ [^{+\text{cons}}_{-\text{nas}}]$

20. $\left\{ \begin{matrix} [-\text{grav}] \\ [-\text{diff}] \\ [^{+\text{grav}}_{+\text{comp}}] \end{matrix} \right\} \text{--->} \quad [\alpha\,\text{long}] \ / \ \begin{matrix} \text{-----} \\ [+\text{voc}\ ] \\ \alpha\text{rise} \end{matrix}$

Rule 19 specifies that only level tone is found on long vowels before a stop, and only falling or low-level tone occurs on short vowels before a stop. According to rule 20, the tone on the vowels e, ɔ, and ə will be rising when the vowel is long, and not rising when the vowel is short. There is also at least a historical connection between the aspiration of a preceding consonant and the tone of a vowel.

Henderson also, however, described certain phonological phenomena in Siamese which can only be interpretable by rules which change inherent features, or delete inherent segments. All of these rules apply in either compound words or polysyllabic words. In compounds, where each member is a monosyllable, the

tone of the first syllable is changed according to tonal sandhi rules which Henderson exemplifies but not sufficiently so that the corresponding rules can be stated for certain. She does state clearly, however, that if the first member of the compound ends in a long vowel, that vowel is shortened, but whether its phonetic length can be distinguished from the length of an inherently short vowel is open to question. If not, then the rule which shortens these vowels can be simply stated as:[17]

21. [+voc ] --> [-long] / --- # [ ]

In certain compounds, however, an extra syllable appears which is not found with either of the simple words making it up. Thus for example \ra:t 'king' plus ja:n 'vehicle' yields the compound \ra:tȳha ja:n 'palanquin', where the middle syllable has "neutral tone". There are many such compounds, and in each of them, a distinctive middle syllable appears. This syllable must be considered to be a part of the first member of the compound; in this example, the word for 'king' must be lexically represented as \ra:tȳha. But if this is so, then there must be a rule which deletes the last syllable of such words when it is not compounded:

22. C V --> ø / ## C V C --- ##

Rule 22 applies only to words of Sanskrit or Pali origin, so presumably such words will have to be marked distinctively in the lexicon as undergoing rule 22.

The structure of Siamese polysyllables is such that the rules given so far do not have to be changed significantly to cover them. The permitted medial clusters of consonants include those made up of stops or nasals followed by any of the consonants or consonant clusters permitted by rules 10-14.

A further rule governing tone in polysyllabic words and in compounds neutralizes the tone of all vowels which are inherently short and are followed by no more than one consonant (optionally followed by a glide or liquid) and another vowel; for brevity, we shall refertto these vowels as occurring in weak syllables. The tone found on all these syllables is called "neutral tone", and is approximately that of the mid-level tone in quality. We can express this fact by means of the rule:

$$23.\quad \begin{bmatrix} +\text{voc} \\ -\text{long} \end{bmatrix} \dashrightarrow \begin{bmatrix} -\text{low} \\ -\text{rise} \\ -\text{fall} \end{bmatrix} / \text{---}\ (\#)\ [+\text{cons}]^1 \begin{bmatrix} \alpha\text{cns} \\ \alpha\text{voc} \end{bmatrix}^1 [+\text{voc}]$$

As we have stated the rules, rule 21 must follow rule 23, so as to prevent the complete neutralization of tone on long vowels which are final in the first

in the first word of compounds. If, however, the length of these vowels can be distinguished from that of inherently short vowels, the problem of ordering does not arise.

It will be noted that the neutral tone on the medial syllable in Sanskritic or Pali originating compounds follows automatically from rule 23. It may be no accident that the weak syllable figures prominently in the tonal system of both Siamese and Indo-European; it may prove worthwhile to investigate the historical implications of this identity of environment in the tonal rules of the two language families.

Henderson pointed out that rules 21 and 23 operate only in certain styles of speaking, namely non-deliberate or ordinary conversational styles. In deliberate or slow speech, vowel length and inherent tone is preserved. These facts were used by Henderson to enable her to avoid having to say that rules 21 and 23 apply at all; rather that there are two styles of speech, or two "languages", if you will, which are <u>related</u> by these rules. Thus, Henderson was able to maintain a strictly classificatory phonological description of Siamese; she was able to rule out precisely those rules which

change inherently specified features. The cost for having done so, however, is considerable. Since, technically, each language requires a separate description, the total number of rules to describe the two speech styles viewed as separate languages will be about twice the number required for describing them as one. To account for the two speech styles in such a "monosystemic" description, we need simply state that rules 21 and 23 are optional; if they are applied, then ordinary colloquial style is described; if not, then deliberate or slow style is described.

3. Allen's prosodic treatment of the well-known Sanskrit "rule of cerebralization"[18] is important, because it is often cited as proof that statements involving concepts like assimilation are avoided in prosodic description; thus Robins has remarked:

> "A prosodic restatement of the familiar Sanskrit rule of 'cerebralization' has been made by setting up in the words concerned a word prosody or word part prosody of retroflexion (R), thereby avoiding the rather tiresome concept of 'action at a distance' of one sound on another in traditional accounts."[19]

Allen's description is to associate with the phonematic units l and s a prosody of retroflexion, whose domain extend forward, toward the end of the word, to include all segments which are not dentals up to and including

the word boundary, or a dental, whichever comes first. The exponents of the prosody are, first retroflexion of its focus (to yield either r or ṣ) and secondly, retroflexion of the last segment in its domain if that is a nasal. This description can, however, hardly be called anything but a notational variant of the traditional description; one which in fact obscures the fact that an underlying n is assimilated to ṇ by a preceding retroflex consonant, as in, for example, brahmaṇa.

The segment ṣ, which is a focus of Allen's retroflexion prosody, arises from an underlying non-retroflex s according to the rule:

1. $\begin{bmatrix} +\text{strd} \\ -\text{comp} \end{bmatrix} \longrightarrow [+\text{flat}] \; / \; \left\{ \begin{bmatrix} +\text{voc} \\ +\text{dif} \end{bmatrix}, \begin{bmatrix} +\text{cns} \\ +\text{cmp} \\ +\text{grv} \end{bmatrix} \right\} \; \_\_\_$

This is to say that s is retroflex when it follows either a diffuse vowel or k, as, for example, in cakṣus, gauṣani 'winning cattle', etc.

Rule 1 must be considered to apply before the rule which corresponds to Allen's retroflexion prosody, which, as we have remarked, must be stated as a rule which does involve assimilation:

$$2.\quad \begin{bmatrix} +\text{nas} \\ -\text{grav} \end{bmatrix} \rightarrow [+\text{flat}] \;/\; [+\text{flat}] \begin{Bmatrix} [-\text{cons}] \\ \begin{bmatrix} +\text{grav} \\ +\text{comp} \end{bmatrix} \end{Bmatrix}_{0} \text{--- } [-\text{obst}]$$

However, there are exceptions to this rule, such as, for example, pranankṣyati; by rule 2, we would expect to find *praṇankṣyati. As Allen pointed out, all these exceptions are of the type where the nasal which is not retroflexed according to rule is followed by a second retroflex consonant. To account for this phenomenon in prosodic terms, Allen suggested that the n in question acts as a sort of a "boundary" between the retroflexion prosodies associated with, in this case, the r of the prefix pra- and the ṣ, and as such is outside of the domain of either of them:

> "On the basis of this method of statement it might be argued that the interrupting nasal articulation then bears to the two R-prosodies much the same relationship as a prosodic syllable marker ... bears to the two syllables; and hence that as the syllable-marker belongs to a different dimension from the linear syllables, so the 'prosody-separator' must belong to yet another dimension outside that of the R-prosodies themselves. We need not be afraid to admit such a possibility: rather we should be prepared to add to our analytical framework just as many dimensions as the material demands."[20]

Just what Allen's appeal to dimensionality was supposed to mean is difficult to assess. In any event, to give a correct description of the facts; i.e., a rule which

also accounts for the exceptions, we need merely amend rule 2 to read:

$$2'.\ \begin{bmatrix}+\text{nas}\\-\text{grav}\end{bmatrix} \rightarrow [+\text{flat}] \,/\, [+\text{flat}] \left( \left\{ \begin{matrix}[-\text{cons}]\\ \\ \begin{bmatrix}+\text{grav}\\+\text{comp}\end{bmatrix}\end{matrix} \right\}_0 \right) \text{---}\ [-\text{obs}]\ [-\text{flat}]_0$$

4. We have already discussed Allen's paper 'Aspiration in the Hārautī nominal' in the preceding chapter, with regard to the formal character of his prosodic description. Here, we shall discuss its content. Allen has provided a convenient summary of the phonological facts which he was concerned to provide a description of:

> "(i) A breathy transition is never followed or preceded by another breathy transition within the word.
> (ii) A voiceless articulation is never followed by a breathy transition except immediately (i.e. when the voiceless articulation in question forms the prior term of the transition).
> (iii) Within the above restrictions, breathy transitions from voiceless articulations are found either initially or non-initially; but by (ii) such non-initial transitions imply that no other voiceless articulation precedes.
> (iv) Breathy transitions other than from a voiceless articulation are only found initially."[21]

It is clear that it is possible to provide a straightforward taxonomic phonemic analysis of these facts, and Allen in fact conveniently provided such an analysis.[22] The phonemic analysis he gave looks just like a paraphrase of the above facts, especially the statement of "defective distribution" which reads (paralleling (i) to (iii) above):

"(a) Aspirated /C/ implies unaspirated following /C/ and preceding /C/.
(b) Voiceless /C/ implies unaspirated following /C/.
(c) Aspirated /C/ implies voiced preceding /C/."[23]

Allen, however, rejected this statement on the grounds that a statement of the distribution of phonemes is necessitated only by the assumption that the basic phonological entities are invariant phonemes -- precisely Harris's argument in 1944 (see above, p. 124).

Allen also rejected as appropriate any description involving the notions assimilation or dissimilations of features, but here as in the case of Sanskrit retroflexion, he had no substantive argument; the rules governing the facts of Harauti aspiration (where we use the feature tenseness to distinguish the aspirates from the non-aspirates) may be expressed as follows:

1. $[+voi\ ] \rightarrow [-tns\ ] \ / \ [\quad\ ] \ ---$

2. $[\quad\ ] \rightarrow [-tns\ ] \ / \ \left\{\begin{matrix}[+tns] \\ [-voi]\end{matrix}\right\} \ [\quad\ ]_o \ ---$

Since Allen's prosodic analysis may be regarded as merely a complicated notation which expresses the same thing as these two rules, he would have no basis for rejecting them as "inappropriate".

Within Allen's descriptive framework, rules 1 and 2

must be viewed as redundancy rules; thus they meet the restriction that they be classificatory in nature. Whether or not they must be viewed otherwise; ie. as possibly changing the specification of otherwise-specified segments, in a phonological description of the entire language cannot be determined from Allen's paper, since he provided no illustrative material which could possibly bear on the question. It would be interesting to know what "morphophonemic" alternations take place in the language, so that one could determine whether the historical development of "throwing back of aspiration" is still preserved as a rule in the synchronic description. The historical development was summarized as follows by Allen:

"The voiced aspirates and h are only tolerated initially; in other cases the (inherited) aspiration is either dropped or, if a voiceless unaspirated stop precedes, is thrown back upon it to produce a voiceless aspirate. Even voiceless aspirates are eschewed in non-initial position if a voiceless stop or s precedes; and if such preceding stop is unaspirated, the aspiration is thrown back upon it as from voiced aspirates."[24]

A rule embodying the historical development may be simply expressed as follows:

3. [-voi ] --> [+tns ] / --- [ ]$_0$ [+tns ]

If there happen to be morphophonemic alternations, say of the type, when dha is added to the stem ka, the

resulting form is khada, then rule 3 would have to be considered part of the phonological component of Hāṛautī, rules 1 and 2 would not be simply redundancy rules in that component, and Allen's contention that of all the possible phonological descriptions, the historical one just quoted is "at once the most concise and the least appropriate of all"[25] would be false, at least as far as appropriateness is concerned.

4. Allen's description of the phonology of the Abaza verb must be considered to rank as one of the most fascinating and thoroughgoing phonological analyses to have been recently published. Allen took a very sharply and somewhat artificially delimited part of the language as his data, namely verb complexes which can function as independent sentences. Interrogative forms of the verb are also excluded, but a large number of examples of them are scattered throughout the paper. The fact that the analysis does not integrate at all with a description of the rest of the language's phonology must be considered the most serious drawback of the whole study.

The verbal complex, the constituents of which include the verb root, concord or agreement elements, tense and

aspect elements, and optionally such constituents as preverbs, and negative, interrogative, directional, causative, and potential elements, always contains just one stressed vowel, and there is just a two-way phonological contrast in the quality of that vowel. Allen symbolized these vowels as a (relatively open) and ę (relatively close; for typographical ease we shall use the symbol e to represent this vowel); we may consider that it is the feature compactness which distinguishes them. The actual phonetic quality of these vowels varies widely, dependent upon their context, but in the same environment, e is generally relatively closer than a. Before the semi-vowels y and w, the vowels a and e take on the gravity of the semi-vowel, and are raised in tongue-height, so that before y, a is pronounced approximately [e] and e is approximately [i]. In word-initial position, however, ay and aw are pronounced [ay] and [aw] respectively. The statement of the phonetic qualities of the two vowels in other contexts is similarly straightforward.

Relatively unstressed vowels also occur in verbal complexes, and the quality of these vowels may also be simply distinguished on the basis of the feature compactness. Moreover, the position of the non-compact

vowels can, for the most part, be predicted, and so need not be represented in the phonological transcription. Interestingly enough, although Allen called these insertable vowels "prosodic", he also spoke of them as being introduced by rules, governed by rather complex conditions, which he had not succeeded in working out at the time of the publication of the paper:

"These conditions are highly complex, and a comprehensive statement has yet to be evolved; the most widely applicable is the 'two-consonant rule', which must however be understood as subject to restriction by other conflicting rules (concerned in particular with the semi-vocalic, liquid and nasal articulations); the rule is statable as follows: --

Counting the consonantal articulations back from the end of the complex, or from any vocalic articulation bearing main or secondary stress, there is a secondarily stressed vocalic transition between the second and third consonantal articulations."[26]

The "two-consonant rule" can be expressed as follows:[27]

$$1.\quad \emptyset \longrightarrow \begin{bmatrix} +\text{voc} \\ -\text{cons} \\ -\text{comp} \\ -\text{acc} \end{bmatrix} \;/\; C_1 \text{ --- } (C_2^2)_1 \begin{Bmatrix} \# \\ [{}^{+\text{voc}}_{-\text{cons}}] \end{Bmatrix}$$

It follows, therefore, that if the position of the non-compact unstressed vowels can be predicted by rule, there is no contrast in the quality of those unstressed vowels whose position is not predictable. Its quality will always be compact:

"From these considerations it follows that close vocalic articulations in other than the main stressed syllable

are to be treated as prosodic ('anaptyctic') and not as phonematic; so that in such syllables only a one-term vowel-system is establishable, having openness as the exponent of its single term."[28]

That is to say, prior to the application of rule 1, there is a rule:

2. $\begin{bmatrix} +voc \\ -cons \\ -acc \end{bmatrix}$ --> [+comp]

It can, however, be shown that the assertion embodied in rule 2, that the quality of unstressed vowels in Abaza verbs can always be predicted, is false, on the basis of evidence supplied by Allen himself. To show this, we must first point out that the placement of stress in verbal complexes is at least partially predictable, a consideration not raised by Allen. First consider the form[29] drSy'ed 'they killed him/her', which has the morphological composition:

(1) d r Sye d
he/she they Root Asp.

as opposed to the form dgyrz'emSyd 'they couldn't kill him/her', which has the composition:

(2) d gy r ze m Sye d
he/she Neg they Pot Neg Root Asp

Comparison of these two forms reveals that in (2), the underlying e of the root Sye was deleted. If we suppose that in (2), the stress assignment rule first assigned main stress to the e of ze, the potential constituent, then we may suppose that a later rule deleted the unstressed e of Sye. In (1), since the e of Sye received the main stress by the stress assignment rule (being the only vowel in the form), it was not deleted. In fact, however, not all unstressed underlying e's are deleted in Abaza, but only those e which are morpheme-final. For this reason, the e of the verbal root es 'hit' is never deleted, even when unstressed. Thus, we have the forms dy'esd 'he/she hit him' and danb'ayes 'when did he/she hit him?', with the morphological composition:

(3) d y es d
he/she he Root Asp

and

(4) dan bay es
Interrog Root

One may contrast with (4), the form (with the root Sye) danb'aySy 'when did he kill him/her?', having the composition:

(5) dan bay Sye
Interrog. Root

The fact that non-morpheme final e's are never deleted,

even when unstressed, means that there is a systematic exception to Allen's contention that the quality of unstressed vowels whose occurrence is not predictable by the anaptyxis rule(s) is predictable by rule 2. It will be noted that in (4), the position of the unstressed ə would not be correctly predicted by the anaptyxis rule 1. If, however, we should decide to drop rule 2 from the phonological component of Abaza, and instead maintain that the two-way opposition of vowel quality is maintained in both accented and unaccented positions, and that there is a rule which deletes morpheme-final unstressed ə's, then the occurrence of ə in (4) and similar forms is no longer to be considered exceptional. This way of formulating the rules of the language also makes it easy to state the rules of stress placement, whereas in Allen's formulation, it would be impossible to state them, since the position of stress (for the correct application of rule 2) would have to be considered phonemic. Unfortunately, it is not possible to determine the rules of stress assignment from Allen's description; since his paper is not oriented toward the problem, the crucial examples are not discussed.

The rule of ə-deletion, may be stated as follows;

3. $\begin{bmatrix} +voc \\ -cons \\ -comp \\ -acc \end{bmatrix}$ --→ ø / --→ +

Other examples which illustrate the application of rule 3 are ySyt?'elxd 'she lifted it', from the underlying form:

(6) y Syt?e l xe d
it Preverb she Root Asp

and ySyt?n'axd 'it lifted it', from the form:

(7) y Syt?e na xe d
it Preverb it Root Asp

It will be noted as a further justification of the formulation of the rules presented here, as opposed to Allen's formulation, that by considering unstressed underlying e's as being deleted, we can represent forms like the preverb Syt?e in the underlying representation uniquely, whereas Allen would be obliged to represent it sometimes as Syt? (as he does for example in (7)), and sometimes as Syt?e, as he does in (6).

In section III of his paper, Allen discussed some extraordinarily intricate phonological phenomena involving junction in the verbal radical. The first of these concerns the voicing of the concord forms s 'first singular', h 'first plural', and Sw 'second plural'; these forms are voiced when they precede a verb root initial voiced obstruent, and when they themselves are not word-initial. This is the case also when the element m, which

is part of the negative constituent, intervenes between the concord form and the radical. If we designate the concord form by the symbol P, we may express the rule which voices these forms as:[30]

$$4.\ [\ ]\ ---\ [+voi]\ /\ [\ ]\ *\ [_{P}\ ---\ ]_{P}\ (+m)\ +\ [_{Root}\ [^{+obst}_{+voi}]$$

Rule 4 does not have any affect on the other concord forms besides the three listed above, since they consist of segments which are inherently voiced. Allen remarked that since only the class of obstruents is distinctively voiced in Abaza, the voicing could be said to occur before radicals whose initial segment is distinctively voiced.

The second instance of junctural phenomena which Allen discussed concerned the third plural concord form r, which dissimilates to d before the causative morpheme r, root-initial r, and itself. It also dissimilates to d before the morpheme ara to form the "disjunctive pronoun" dara 'they'(cf. the parallel forms s 'first person' plus ara yields sara 'I', etc.). Any constituent may intervene between the concord form and the following form containing an r, except apparently preverbs (to explain Allen's example 77). The rule of dissimilation can be expressed simply as:

5. $\begin{bmatrix}+\text{cons}\\+\text{flat}\end{bmatrix}$ --- $\begin{bmatrix}-\text{voc}\\-\text{flat}\end{bmatrix}$ / $\begin{bmatrix}\text{---}\\P\ P\end{bmatrix}$ X $\begin{bmatrix}+\text{cons}\\+\text{voc}\\+\text{flat}\end{bmatrix}$

where X does not contain Preverb or #.

If we assume that preverbs occur with a word-boundary, that is, that we consider them to be enclitics, then rule 5 can be simplified in an obvious way.

Next, Allen observed that if a verbal root begins with a e, it metathesizes with an immediately preceding m, which is part of the negation constituent. Thus, from underlying:

(8) s gy l m es d
I Neg she Neg Root Asp

we get the form sgyl'emsd 'I didn't hit her'. If the causative r, however, intervenes between the m and the root, the metathesis is blocked:

(9) s gy l y m r es d
I Neg she he Neg Caus Root Asp

is pronounced sgylymr'esd 'he couldn't make me hit her'. If, however, the complex contains three concord elements, and there is no causative constituent to block the metathesis, the third concord element along with m metathesizes with the radical-initial e. Thus from:

(10) y gy l ze s m eZw d
it Neg she Pot I Neg Root Asp

we get ygylz'esmZwd 'I didn't drink it for her', by metathesis of the e of the root eZw 'drink' with the preceding

constituents s and m, and deletion of the unaccented e of ze by rule 3. In a similar manner, from:

(11) y l s et d
it she I Root Asp

we get yl'estd 'I gave it to her'. We may express the e-metathesis rule as follows, where $P_3$ indicates the third concord element in the verbal complex:

6. X + ($P_3$) + (m) + [ e Y ]
Root Root

1 2 3 4 5 --> 1 4+2 3 0 5

Transformational notation has been used to express rule 6, even though it is a phonological rule. It will be see, however, that this notation is a simple and natural way to express phonological metathesis, which may be viewed as the phonological counterpart to syntactical permutation. Actually, permutation (and metathesis) is properly expressed as a combination of the simpler operations of adjunction and deletion; as we have stated rule 6, it will be seen that both these operations have been expressed; the e (element 4) has been adjoined in front of element 2, and also deleted in its original position. If rule 6 is made to precede rule 4, then we correctly account for the fact that, if upon metathesis, a concord element immediately precedes a voiced obstruent

which is radical initial (although that obstruent is not radical initial in the underlying form), with an optionally intervening m, that element is voiced.[31] Thus, for example, the element s in (10) is voiced.

We are now in a position to explain a particular phonetic ambiguity which Allen noted, but did not (or could not) explain. The form ygylz'esmZwd, with the verb root eZw, is derived from (10), as we have seen, by application of rules 6, 4, and 3. This form also may result, however, from an underlying form in which the verb root is Zwe 'boil', namely the form:

(12)

| y | gy | l | ze | s | m | Zwe | d |
|---|---|---|---|---|---|---|---|
| it | Neg | she | Pot | I | Neg. | Root | Asp. |

By stress assignment, stress is placed on the vowel e of ze. By (4), the concord element s is voiced, and by rule 3, the unaccented e of Zwe is deleted, resulting in ygylz'esmZwd, as before. Thus we see that the phonetic ambiguity of this form results from the application of different phonological rules to different underlying representations. Since Allen made no attempt to formalize the rules of "juncture", and since he had no way to account for the appearance and disappearance of e in the morphemes ze and Zwe, he was unable to see why this ambiguity should have arisen.

From these two examples, (10) and (12), we see, incidentally, that the stress-assignment rules must have the following property: if the verbal complex contains two morpheme-final e's, as in (12), the first receives the main stress; if, as in (10), the second e is not morpheme-final, it receives the main stress.

The final "juncture" phenomenon noted by Allen concerned the pronunciation of the diphthongs ay and aw in certain positions. As we have already noted (above, p. 176), non-initial ay and aw should be pronounced [ey] and [ow] respectively. There are certain forms, however, where like ey and ew, they are pronounced [iy] and [uw]. Forms in which this pronunciation is found all have certain grammatical characteristics, listed by Allen in his description,[32] and there does not seem to be any obvious way to improve upon his description, despite its inelegance.

It is interesting to note that Allen described none of these juncture phenomena in prosodic terms, and that furthermore, if he did, it would weaken his description. Take, for instance, the last phenomenon which he described, namely the "neutralization" of ay and aw with ey and ew in certain contexts. Despite the identical pronunciations of these diphthongs, Allen maintained them phonologically

distinct in his representation. In a prosodic description, however, he would be unable to maintain them distinct, precisely because a prosodic description involves allotting phonetic data to prosodic elements. Since the only phonetic data in these contexts are the forms [iy] and [uw], there is no way open for him to maintain the distinction between compact and non-compact vowels in those contexts. But clearly, in an adequate description, the distinction must be maintained, so as to reveal the correct paradigmatic relationships in a single conjugation, if nothing else.

In section IV of his paper, Allen discussed certain grammatical characteristics of the Abaza verb. The verbal complex contains up to three positions or slots in front of the verb root for which concord elements may be substituted, and following Allen for the time being, we may designate them as $P_1$, $P_2$, and $P_3$. Seven different concord elements, exclusive of the relative, reflexive, and reciprocal elements, which are not discussed in the paper, may be substituted for $P_1$, and nine may be substituted for both $P_2$ and $P_3$. The forms for the third person masculine and feminine singular, and for the third person non-human and plural, which are distinct in $P_2$ and $P_3$, are collapsed into one

form apiece in $P_1$. Instead of a concord element, a noun may appear in the $P_1$ position, if it is either non-human or plural.[33]

Verbs with a single object fall into two classifications, according to whether $P_1$ is in concord with the subject or with the object, and vice versa for $P_2$. If we designate these classes as 1 and 2 (in the inverse order, following Allen), we require a classificatory rule:[34]

Cl. $P_1 \cdot P_2 \quad X \quad Verb_{\{1,2\}} \dashrightarrow P_{\{o,s\}} \; P_{\{s,o\}} \; X \; Verb_{\{1,2\}}$

Verbs of class 1, however, take the order of agreement $P_sP_o$ in reciprocal sentences.

There would be no need for such a rule if we supposed that the concord positions were designated as subject-agreeing and object-agreeing from the start. If we take the order $P_sP_o$ as fundamental, then we could derive the order of the concord elements with verbs of class 1 by means of the following transformational rule:

Tl. $P_s \quad P_o \quad X \quad Verb_1$

$1 \quad 2 \quad 3 \quad 4 \quad \dashrightarrow \quad 2 \quad 1 \quad 3 \quad 4$

if $P_o \neq$ Reciprocal

From the examples given by Allen, it appears that all

verbs which occur with two objects, such as et 'give' are of class 1. We may designate the concord element in agreement with the indirect object as $P_1$. The analysis which considers that the functional designations $P_s$ and $P_o$ for the concord positions is fundamental, rather than the sequence designations $P_1$ and $P_2$, receives further justification from the fact that it is the functional designations which are used in the statement of othe transformational rules of the language. For example, any verbal prefix (or preverb) follows $P_o$, regardless of its position relative to $P_s$, according to the rule:

T2. $P_o$ X Preverb

1 2 3 ---▶ 1 + 3 2 0

The constituent which Allen called Potential follows $P_s$, regardless of its position relative to $P_o$; thus:

T3. $P_s$ X Potential

1 2 3 ---▶ 1 + 3 2 0

We shall not be concerned for the time being about where the constituents Preverb and Potential are located prior to the application of rules T2 and T3; we shall discuss further below the problem of stating the phrase structure of the Abaza verb, which, of course, bears on this question.

Causative verbal forms are formed from simple ones by prefixing a causative element to the verb root. The agent of the cause is indicated by a concord element which is located directly before the causative morpheme, and we shall designate that concord element as $P_a$. With the class 1 verb root Sye 'kill' we have the simple form:

(13) $\underset{\substack{P_o \\ it}}{y}$ $\underset{\substack{P_s \\ she}}{l}$ $\underline{Sye}$ $\underline{d}$
Root Asp

ylSy'ed 'she killed it'. A corresponding causative is:

(14) $\underset{\substack{P_o \\ it}}{y}$ $\underset{\substack{P_s \\ she}}{l}$ $\underset{\substack{P_a \\ I}}{s}$ $\underline{r}$ $\underline{Sye}$ $\underline{d}$
Caus Root Asp

ylsrSy'ed 'I made her kill it'. With the class 2 verb root es 'hit', we have the simple verbal form:

(15) $\underset{\substack{P_s \\ he/she}}{d}$ $\underset{\substack{P_o \\ they}}{r}$ $\underline{es}$ $\underline{d}$
Root Asp

dr'esd 'he/she hit them'. A corresponding causative is:

(16) $\underset{\substack{P_s \\ he/she}}{d}$ $\underset{\substack{P_o \\ they}}{r}$ $\underset{\substack{P_a \\ I}}{s}$ $\underline{r}$ $\underline{es}$ $\underline{d}$
Caus Root Asp

ddsr'esd 'I made him/her hit them'. Sentences (14) and (16) are derived, undoubtedly, by a generalized transformation which embeds the causative and its agent into the simple sentences (13) and (15). In these sentences,

no independent nominals with which the concord elements may be said to be in agreement have been expressed; this is of course, not the usual state of affairs.

The potential morpheme may occur in causative sentences, and if so, the concord element in agreement with the agent, $P_a$, is attracted to a position immediately preceding it. Thus, a rule such as the following is required:

T4. Potential X $P_a$

1 2 3 ---▸ 3 + 1 2 0

Thus in sentences containing both the potential and causative constituents, both rules T3 and T4 apply. With class 1 verb roots, the application of these two rules does not effect any change in the order of the concord elements. Thus, if we are given an underlying string:

(a) $P_o$ $P_s$ $P_a$ Caus $Root_1$ Aspect Pot

application of rule T3 yields:

(b) $P_o$ $P_s$ Pot $P_a$ Caus $Root_1$ Aspect

and then T4 yields:

(c) $P_o$ $P_s$ $P_a$ Pot Caus $Root_1$ Aspect

with the P's in the same order as in (a). For example:

(17) $\underset{\substack{P_o \\ I}}{\underline{s}}$ $\underline{gy}$ Neg $\underset{\substack{P_s \\ he}}{\underline{y}}$ $\underset{\substack{P_a \\ she}}{\underline{l}}$ $\underline{ze}$ Pot $\underline{m}$ Neg $\underline{r}$ Caus $\underline{Sye}$ Root $\underline{d}$ Asp

sgyylz'emrSyd 'she couldn't make him kill me'.

With class 2 verb roots, however, application of these two rules produces an order of the concord elements which is different from the underlying order; given the underlying string:

(a') $P_s$ $P_o$ $P_a$ Caus $Root_2$ Aspect Pot

application of rule T3 yields:

(b') $P_s$ Pot $P_o$ $P_a$ Caus $Root_2$ Aspect

and then T4 yields:

(c') $P_s$ $P_a$ Pot $P_o$ Caus $Root_2$ Aspect

with the P's in a different order in the derived string than is found in the underlying string. For example,

(18) s gy y ze l m r es d
$P_s$ Neg $P_a$ Pot $P_o$ Neg Caus Root Asp
I he she

sgyyzlmr'esd 'he couldn't make me hit her'.

What Allen observed was that the sequence of concord elements in verbal complexes such as (18) is not a true reflection of their grammatical order, where by order, he meant the sequence in which the elements are found in (a'). Thus Allen associated the term sequence with what we may consider to be "derived constituent structure" -- the structure displayed by sentences in their actual phonetic form, -- and order with "underlying constituent structure", the structure displayed by

sentences prior to the application of transformations. Thus at this point, Allen supplied a fairly deep and significant interpretation for Firth's technical terms sequence and order (see above, p. 175):

"The peculiarities of exponential sequence associated with the Potential in three-pronoun complexes containing class 2 roots are thus not reflected in the order of grammatical structure. Concord relationships are relationships between elements of grammatical structure and not between phonic data; and the concord-patterns of the Potential are thus the same as those of the non-potential."[35]

This is, of course, only an isolated instance of such an insight, and certainly does not mean in general that the difference between order and sequence in London school descriptions is taken to mean the difference between underlying and derived structure.

A few remarks are in order concerning the nature of the phrase structure component of the Abaza grammar. Of course, Allen has not described Abaza structure from the point of view of separating and distinguishing between the phrase structure and transformational component of the Abaza grammar, but on the basis of his description, a few things may be pretty fairly determined about the phrase structure. Unfortunately since Allen chose to discuss only a very limited aspect of the structure of Abaza, even of the verb itself, it is not possible to give a particularly well-motivated account of Abaza phrase

structure on the basis of his description; knowledge of the structure of verbs in subordinate clauses and in interrogative sentences is obviously required. There seems to be sufficient evidence for believing that the verbal complex consists of two major constituents, which we may call the Verb and the Auxiliary respectively. The Auxiliary comprises such constituents as Negative, Directional, Repetitive, Potential, Tense and Aspect, while the Verb is made up of the concord elements, Preverb, and Root. The following rules may be suggested as some sort of first approximation to the phrase structure rules of Abaza:

P1. S --→ NP VP Aux

P2. VP --→ ... Verb (where ... indicates the other constituents dominated by VP, such as NP (object), etc.)

P3. Aux --→ (Neg) (Dir) (Repet) (Pot) (Tense) Aspect

P4. Verb --→ $P_s$ $\theta_o$ $P_1$ (Prev) Root

The rule which classifies roots according to whether or not T1 applies, may be stated as a lexical classification rule:

C1'. Root --→ Root $\}_{1,2}\{$

Since there is a subclassification of the preverbs, according to the class of the root with which it occurs,

we also need the lexical rule:[36]

C2. Prev --> $\text{Prev}_{\{1,2\}}$ / --- $\text{Root}_{\{1,2\}}$

In the derived constituent structure, the various members of the auxiliary are scattered throughout the verbal complex; some like the Negative and the Repetitive are often or always discontinuous. We have already given the transformational rules which govern the position of the Potential in the derived constituent structure. The concord elements labelled P occurring in the verb are "dummies" for which concord elements are substituted by agreement transformations. The motivation for considering them as being indicated in the phrase structure involves the fact that the agreement transformations must be put near or at the end of the transformational component, since the concord elements agree not with the subject and object of the underlying structure, but of the derived structure. Rules which must be considered to occur before these agreement transformations may have to refer to these concord elements, so it is useful to have them already designated in the phrase structure.[37] We may adopt as a convention that if any P (such as $P_1$, or $P_0$, in the case of pure intransitive verbs) is not filled by any actual element, it is deleted.

6. Carnochan's phonological study of Hausa was, according to his own testimony, deeply influenced by Firth right at the time of his publication of 'Sounds and prosodies':

> 'It was during the visit I made to the Northern Provinces of Nigeria in 1948, to study the phonetics and phonology of Hausa, that I became increasingly aware of a prosodic approach in linguistic research. My previous work under Professor J.R. Firth had already put me on the way towards using such an approach, but I had not advanced very far. Professor Firth read his paper on 'Sounds and prosodies', to this society shortly before my departure for Nigeria, and my research in the field, and my methods of stating the linguistic facts have been profoundly influenced by it.'[38]

The published results of this study are contained in the three papers mentioned in note 5; upon examination of them it will be discovered that they cover strikingly little substantive ground.

The contents of the first paper can be summarized as follows: there is a phonological distinction between long and short vowels in Hausa (not noted explictly in the orthography), but the feature which distinguishes them may be considered to be glottalization, since utterance-final short vowels are "closed" with the glottal stop. This single piece of evidence hardly constitutes justification of this feature identification, but there is no point in disputing the claim here. Carnochan went on to observe that the distinction between long and short vowels is neutralized in word-final

position in nouns preceding the possessive pronoun enclitic. All such vowels are long before the enclitic na 'my', and short before all the others, which are also all of the phonological structure CCV.

In the second paper, Carnochan again insisted that it is the glottalization feature which distinguishes long vowels from short ones, and he identified this feature with the feature whose consonantal properties we have already discussed (above, pp. 147-148).

From the discussion in this paper, it can be easily determined that vowel length is neutralized when vowels occur before two consonants; thus we find cika:, so:ka:, muʃka:, but no *mu:ʃka:, etc. The surprising fact is that Carnochan gave no indication that he noticed this fact, although it can be determined directly from his notation for writing Hausa prosodically, as follows. Vowel length is indicated formulaically by a raised v following the vowel; thus so$^{v}$ka, and shortness by a raised ?; thus ci$^{?}$ka. But these signs v and ? are considered to be representative of syllable-final prosodies, and hence are attached (along with the sign h) not to the vowel which is followed by two consonants, but to the first of these consonants; thus mus$^{h}$ʃka:. When attached to consonants in

these cases, h indicates voicelessness of the preceding consonant, v voicing, and ? glottalization. Since vowels which appear before two consonants are not marked for length, it follows that if Carnochan's analysis is correct, vowels are not distinctively long when they precede two consonants. We see in particular from the fact that inherent length may be neutralized before a suffix beginning with two consonants (such as all of the possessive pronouns except for first person singular), that there is a possibility that vowels may be distinctively long or short before two consonants throughout the language. If this is true, however, Carnochan's published results so far will not lead us to it.

Carnochan's third paper on Hausa, if anything, is of even more restricted significance than his preceding two. In it, he describes a certain class of "verbal nouns" as being derived from verbs by means of a suffix which duplicates and lengthens the final consonant of the verb stem. Thus from the stem jef, the verbal noun stem jef+aff is formed, to which may be added suffixes indicating number and gender. Before the masculine and feminine singular endings, (orthographically e and iya) geminate t,d,s,z are palatalized

to géminate č, ǰ, š, and ǰ respectively. Thus, from fit, the masculine and feminine singular verbal nouns fitačče and fitaččiya are formed; the plural common gender form is fitattu. The glottalized pre-palatals c' and ts' are not affected by this palatalization rule, thus dac'ac'ce from the stem dac'. The remainder of the paper discusses gemination which arises under other circumstances in various Hausa dialects, but the facts themselves are very elementary.

While we shall not concern ourselves with the details here, it should be clear that Carnochan's prosodic notation can be easily converted into a long component notation.

7. Robins's description of Sundanese vowel nasality was published in Studies in linguistic analysis to illustrate "within a delimited and relatively restricted field in a language, the use and application of prosodic abstractions in phonological statement."[39] The conditions under which nasalized vowels occur in Sundanese may be described very simply:

"once nasality has been initiated by the articulation of a nasal consonant, ... it continues irrespective of syllable boundaries until checked ... Nasality is checked by:
1. A word boundary.
2. A supraglotally articulated consonant, i.e. any

consonant other than h or ?. A second or subsequent nasal consonant in a word may be regarded as the check point of previously initiated nasality and as initiating subsequent nasality."[40]

To describe these facts, Robins proposed the following notation:

"In the case of words in which there are syllables with nasalized vowels whose nasality is to be regarded as initiated by a preceding nasal consonant, the extension of n [the nasal prosody] within the word may be symbolized phonologically by writing ‾ over the C and V elements of the syllables that are concerned. The C element to which this initiating consonant may be referred in the symbolization will be a focal point of n in the word."[41]

In this case, Robins's n prosody can be considered a long component with no alteration of the notation, and it is clear that the rule corresponding to his analysis is simply:

1. [+voc ] --> [+nas ] / [+nas ] [-cns ]$_0$ ---

There are words in Sundanese, however, for which rule 1 does not correctly predict vowel nasality. These words all are verbs in which the plural infix ar/al occurs immediately following a word-initial nasal consonant. For example, in the work m+ar+iak, not only is the vowel a of the infix nasalized, as one would expect from rule 1, but also the a of the verb stem, even though the consonant r intervenes between it and the preceding m. Furthermore, the i preceding this nasalized

a is not nasalized. In general, "the third and following syllables of the -ar/al- infixed forms are also characterized by nasalization."[42] This results in a phonetic contrast of nasalization between such forms as m+ar+iak [mãriãk] and marios [mãrios]. To account for the pronunciation of such forms as m+ar+iak, Robins devised a notation for expressing these facts, which corresponds to the following rule (an amendment of rule 1):

1'. [+voc] --> [+nas] / [+nas] (+Plural+ [ ]) $[-cns]_0$ ---

Rule 1' applies to a form like m+ar+iak as follows. First apply rule 1' in its full form. The only vowel which is in the environment [+nas] + Plural + [ ] $[-cns]_0$ --- is the vowel a of the verb stem. Upon application of rule 1' in its full form, the resulting pronunciation is m+ar+iãk. Rule 1', in its short form, that is, the rule which results by disregarding the elements in parentheses, also applies to this form, since the a of the plural infix is in the environment [+nas] $[-cns]_0$ ---, and hence is nasalized, yielding m+ãr+iãk. In a similar way, the correct assignment of vowel nasality is given to all such forms with the plural infix.

We have already discussed Robins's contention (above, pp. 130-132) that his prosodic analysis is superior to

any possible phonemic analysis, indicating that in fact he failed to show that a phonemic analysis cannot be introduced without complicating the description. We see now that, in fact, a phonemic analysis can be so introduced; we need merely consider the "long" form of rule 1' to be a morphophonemic rule, and its output to be a phonemic transcription; in fact, it is the phonemic transcription which was suggested by Stockwell in his review of Studies in linguistic analysis.[43] The 'short" form of rule 1 may be considered to be the usual sort of rule which expresses the distribution of allophones (in this case the nasalized allophones of each of the vowels in Sundanese).

8. Mitchell's paper on Arabic stress and syllabification has two objectives; first to state the systematic relationship between stress and syllable structure for several Egyptian and Libyan dialects of Arabic, and also for the classical language as taught today in Cairo, and second to give a fairly comprehensive account of the phonology of the vowel system as a whole of a Libyan dialect of Arabic spoken by a Bedouin group in the Cyrenaica Jebel. Especially in the latter section, Mitchell's prosodic assumptions are very much in the

background. Like W.S. Allen in his 'Structure and system in the Abaza verbal complex', it is clear that Mitchell intended to describe a language, and not to demonstrate the virtues of prosodic analysis.

The fact that in Arabic one can predict which syllable of a word will receive stress or "prominence' from a knowledge of the syllable structure of the word in any of the contemporary dialects is well-known, and this fact was remarked upon, as we have seen, by Firth in 'Sounds and prosodies' (above, p. 120). Similarly, the placement of stress is predictable in the forms of classical Arabic which is taught today, although the rules vary depending upon where it is being taught. As it is taught today in Cairo, for instance, the ultima is always stressed if it is in a long syllable; that is if the vowel is long and it is followed by one consonant, or if the vowel is short, it is followed by two consonants. Thus, dar'abt, yusall'uun.[44] If the ultima is not long, then the penult or the antepenult is stressed. According to Mitchell, the penult is always stressed in disyllables in which the ultima is not long; and when the penult is not short, that is if the syllable containing the penultimate vowel does not consist simply of a consonant followed by a short vowel. Thus, k'atab, must'aŝfaa, kit'aaba, mum'aaddah. Other

cases in which the penult is stressed are those in which it is short, but where either the antepenult is not short, or both the antepenult and the ante-antepenult are short. Examples of the first kind are kaat'aba, qatt'alat, and makt'abah; examples of the second kind are šajar'atun, katab'ataa, and murtabiṭṭatun. In all other cases, the antepenult is stressed, thus k'ataba, ʔink'asara, and bulahn'iyatun.

The preceding account of the relationship between Arabic stress and syllable structure is approximately a paraphrase of Mitchell's account. On the basis of its complexity, it would seem that some sort of generalization is being missed. That generalization is that it is not syllable structure as such with which stress placement is related, but simply the sequence of vowels and consonants in the word, where we view long vowels to consist of a sequence of two identical vowels. Then we may say that stress is placed on the last vowel of the word which is immediately followed by the sequence XC, where X is any segment, if that vowel is either the peult or the ultima. We may call the sequence VXC a "strong cluster". Otherwise the stress goes on the vowel which is an odd number of vowels following the last strong cluster, or if there are no strong clusters in the word, an odd number of vowels from

the beginning of the word, such that the stressed vowel is either the penult or the antepenult. The rule which embodies this statement is the following:

$$1.\ \left[\begin{smallmatrix}+\text{voc}\\-\text{cons}\end{smallmatrix}\right] \text{ --- } [+\text{acc}] \ / \ \left\{\begin{array}{l} \text{a. --- [ ] C (VC)}_{o}\ (\text{V})^{2}\ \# \\ \text{b.} \left\{\begin{smallmatrix}[+\text{acc}]\\ \#\end{smallmatrix}\right\} \text{C}_{o}(\text{VCVC})_{o}\text{---(CV)CV([ ])\#} \end{array}\right\}$$

Part a of rule 1 assigns stress to the last strong cluster in the word, and part b then assigns stress an odd number of syllables following the syllable stressed by part a, subject to the restrictions noted above, or an odd number of syllables following the beginning of the word. If part b assigns stress to a vowel following a stressed syllable, we adopt as a convention that the stress on the first syllable is reduced.

Mitchell pointed out a few of the differences in accentuation of the classical language as it is taught in various places; for example, in Lebanon, final long vowels are treated as strong clusters, so that the form katabataa is stressed on the ultima. In other places, the stress is simply placed on the last strong cluster, or on the first vowel of the word, in case there is none. In these renderings, then, we find the pronunciations k'atabataa, q'itʕata, and bul'ahniyatun, and for this

"dialect", rule 1b must be replaced by the much simpler rule:

1b'. $\begin{bmatrix} +voc \\ -cons \end{bmatrix}$ --> [+acc] / $\#C_0$ ---

Rule 1b' must, however, precede rule 1a in this dialect, in order to prevent all words to be stressed on the initial vowel, which would be the case according to our convention if 1b' followed 1a.

Mitchell went on to observe that the stress pattern of contemporary colloquial Cairo Arabic is not much different from the stress pattern of the classical language as taught in Cairo. He specifically rejected the view expressed by R.S. Harrell that stress in contemporary Egyptian Arabic must be considered to be phonemic simply because "it is not completely predictable in terms of other phonological rules."[45] Rather, Mitchell argued, "those comparatively rare forms which do not lend themselves to a formulation covering 90% of the word-material are nevertheless perfectly regular provided presentation is made within a framework of grammatical division."[46] The only possible interpretation of this statement is that Mitchell believes that the placement of stress may be determined by rules which are stated in terms of grammatical categories. Mitchell does not deal with the 10%

residue here, but his position on how to deal with it is clear.

We may now turn to Mitchell's account of the phonology of vowels in the Bedouin dialect of the Cyrenaica Jebel, described in the second part of his paper. Mitchell first noted that there are a large number of minimal pairs in this dialect distinguished by stress placement alone; thus 'iktib 'write (imperative)' versus ikt'ib 'books' and haj'al 'partridges' versus h'ajal 'having white hair on the forelegs (of horses)', etc. He argued that because of these pairs, the phonemicist has no recourse but to consider stress placement phonemic in this dialect. But to do so, he contended, would be at best unrevealing; a phonemic solution of this sort fails to account for a number of facts related to this seeming phonemic placement of stress, such as, for example, when the affix -ih is added to 'iktib, the resulting form is 'ikitbih 'write it (imperative)', whereas when it is added to ikt'ib, the result is k'itbih 'his books'. It is the relationship of stress placement in related forms that demands phonological explanation.

But in order to determine what the rules of stress placement in this dialect are, Mitchell argued, one must

also know what the rules are which govern loss of vowels in open syllables, and insertion of vowels into consonant clusters (anaptyxis):

"Dissociated from the structural features which this paper has attempted to handle in terms of sonants, anaptyxis, and the inadmissibility of successive short open syllables, the formulation of [the] Cy[renaica Jebel] D[ialect] rules of prominence would mean little."[47]

The treatment of vowels in short open syllables is the key to Mitchell's entire description. He first pointed out that the phonetic quality of short vowels before a single consonant followed by another vowel is completely determined:

"The transcribed difference between the vowels of the first syllable of, say, haš'iis 'grass', tur'iig 'road', and kib'iir 'big (m.s.)' ... is regularly relatable to differences of the initial consonant ... The openness of the vowel in haš'iis is regularly associated with initial gutturality; central vowel quality in tur'iig relates to initial emphasis; half-close frontness in kib'iir to an initial articulatory complex which contains neither gutturality nor emphasis. No vowel alternance of the usual kind can be established for short open syllables in Cy.D."[48]

It follows that when a form ending in a short vowel and a single consonant receives a suffix beginning with a vowel, the final vowel of the first form is then completely determined in quality. Thus, g'assam 'he divided', but g'assimih 'he divided it'. If, however, the final vowel of the stem is a close vowel, it drops when a vowel-initial suffix is added: g'assim 'divide

(imperative)', but g'assmih 'divide it (imperative)'. The close vowel remains, however, if a suffix with an initial consonant is added: s'iemih 'forgive (imperative)' and saam'ihha 'forgive her' (note that aa becomes ie when stressed). This indicates that close vowels are deleted in short open syllables; a fact which we may express by the rule:

2. V --> ø / C [-comp] C V

If this is the case, then the initial vowels in the words haš'iis, tur'iig and kib'iir must not be represented as being non-compact at the point of application of rule 2. Since there is no reason to postulate a phonologically three-way vowel height distinction in this dialect, these vowels should therefore be represented as being phonologically compact. Similarly, the final vowel of g'assam must be compact, and be so represented at the point of application of rule 2 in the phonological derivation of the form g'assimih.

Following rule 2, the rules which specify the quality of vowels in open syllables apply. It will be useful to be able to refer to these vowels as a class together with the anaptyctic vowels, since the quality of the latter is also determinable in a way

similar to that by which the quality of vowels in open syllables is determined. The simplest way to do this is to choose some single feature which they can all be said to share, and it would seem that the best choice that could be made would be the feature non-compactness, since the only vowels of this class which are phonetically compact are those which follow gutturals, and their exact phonetic specification may well be handled by a very low-level rule. No other feature (except possibly gravity) could be used without introducing a new feature ad hoc into the vowel system, so that the choice of non-compactness appears well-founded. Therefore, the first rule of this set of rules specifying the quality of vowels in open syllables is simply:

3. V --> [-comp] / C --- CV .

Consider now the underlying specification of the first vowel in kit'ab 'he wrote'. Since it was obviously not deleted by rule 2, it must have been a compact vowel, and the underlying form is therefore katab. When, however, a suffix beginning with a vowel is added, this first vowel drops; thus underlying katab+at is pronounced ikt'ibat (the initial i is anaptyctic) 'she wrote'. To be able to delete the first a in katab+at, we either

require in addition to rule 2 the following deletion rule:

4. V --→ ∅ / C --- C V C V

or we need a means of first making that vowel non-compact (by rule 3), and then deleting it by rule 2. As matters stand, however, this is impossible, since rule 3 must obviously apply after rule 2; otherwise every vowel in an open syllable would be deleted.

The form katab+at has, however, the constituent structure [[katab]at]; that is to say, it is a verb consisting of a stem and an ending (the stem is itself composed of the triliteral root ktb and inserted vowels indicating the tense, but this fact has no bearing on the present discussion.). Therefore, if we said that rules 2 and 3 apply in that order in a transformational cycle,[49] then on the first cycle, rule 3 would apply to the first a of katab, raising it to i. Then on the second cycle, it would be deleted by rule 2, and rule 3 would raise the second a of katab to an i. Then, the anaptyxis rule would apply, inserting an i between the word-boundary and the k in the initial cluster #kt. Disregarding for the time being the problem of stress assignment, we can diagram the phonological derivation

of ikt'ibat from [[katab]at] as follows:

| Form | Rule |
|---|---|
| (1) [[katab]at] | |
| kitab | 3 |
| kitabat | new cycle |
| ktabat | 2 |
| ktibat | 3 |
| iktibat | anaptyxis |

The rule for inserting anaptyctic vowels is quite simple; if one assumes, as does Mitchell, that initial and final word-boundaries are treated as consonants, an anaptyctic vowel is inserted before the last two consonants in any sequence of three or more consonants. Then, if there are still three consonants preceding this vowel, a second anaptyctic vowel is inserted after the first two (this case only arises from the sequence #CCCC; designating the anaptyctic vowels by i, the resulting sequence is #CiCiCC). The rule of anaptyxis can be stated as:

$$5.\quad \emptyset \rightarrow \begin{bmatrix} +vocs \\ -cons \\ -comp \end{bmatrix} \;/\; (C'\ C'\ ---)C'\ ;---\ C'\ C'$$

where C' stands for the class consisting of the class C together with the word-boundary.

If we suppose that stress is assigned in the transformational cycle before the application of rule 3, then

we are able to generate the correct stress assignment in all forms, if we suppose the stress assignment rule stresses the ultima in disyllables having no strong cluster, and that the stress is placed an even number of syllables after the last strong cluster (instead of an odd number as in rule 1b). We also require the following conventions regarding what happens when a stressed vowel is deleted by rule 2: (i) stress is moved to the following vowel, and (ii) if by (i) stress falls on the ultima, then the stress is thrown back onto the first anaptyctic vowel. We shall provide a number of examples to show how this works below.

Rule 2 is not correct as it stands, however, as a rule of the transformational cycle, because it would incorrectly derive the pronunciations *Iktabit and *iktabti from the underlying forms [[katab]t] 'I wrote' and [[katab]ti] 'you (fem. sg.) wrote'. Rather, the correct forms are kit'abit and kit'abti respectively. To prevent the deletion of the first vowel of katab in these forms, rule 2 must be amended to prevent the deletion of vowels in short open syllables when the following vowel is followed by two consonants. That is, it must be written:

$$2'.\quad V \rightarrow \emptyset \;/\; [\overline{\text{-comp}}]\quad C\ V \begin{Bmatrix} C\ V \\ (C)\ (\#) \end{Bmatrix} ]$$

It will be seen that rule 2' is not much simpler, if at all, than the combination of rules 2 and 4, which are required if one attempts to give an adequate phonological description of the facts presented by Mitchell, assuming that the rules of vowel deletion do not operate in a transformational cycle. As matters stand, therefore, there is little to choose between the alternative formulations, and more information about the dialect will be required before a decision can be made as to which one will prove to be simpler, and still be adequate to describe the phonology of the language.

To show how the rules of stress assignment (which we will indicate by the number 1 in the diagrams below), and rules 2', 3 and 5 operate together in the transformational cycle formulation, we will provide the derivation of the following forms: (ii) [[katab]t] kit'abit 'I wrote', (iii) [[katab]ti] kit'abti 'you (fem. sg.) wrote', (iv) [ktib] ikt'ib 'books', (v) [iktib] 'iktib 'write (imperative)', (vi) [[ktib]ih] k'itbih 'his books', (vii) [[iktib]ih] 'ikitbih 'write it (imperative)', (viii) [yingatil] y'ingitil 'he can be killed',

(ix) [[yingatil]u] ying'itlu 'they can be killed', (x) [ingatal] ʻingital 'he was killed', (xi) [[ingatal]at] inigt'ilat 'she was killed', (xii) [šajar] šijar[50] 'tree', (xiii) [[šajar]it] iš̆j'irih 'a tree', (xiv) [[[šajar]it]ih] š̆'ijirtih 'his tree', (xv) [[[šajar]it]ani] šajart'ayn 'two trees', (xvi) [[[šajar]it]ha] iš̆jir'itta 'her tree'.

| | Form | Rule | | Form | Rule |
|---|---|---|---|---|---|
| ii | [[katab]t] | | iii | [[katab]ti] | |
| | kat'ab | 1 | | kat'ab | 1 |
| | kit'ab | 3 | | kit'ab | 3 |
| | kit'abt | n.c. | | kit'abti | n.c. |
| | kit'abit | 5 | | | |
| iv | [ktib] | | v | [iktib] | |
| | kt'ib | 1 | | 'iktib | 1 |
| | ikt'ib | 5 | | | |
| vi | [[ktib]ih] | | vii | [[iktib]ih] | |
| | kt'ib | 1 | | 'iktib | 1 |
| | kt'ibih | n.c. | | 'iktibih | n.c. |
| | ktb'ih | 2 | | 'iktbih | 2 |
| | k'itbih | 5 | | 'ikitbih | 5 |

| | Form | Rule | | Form | Rule |
|---|---|---|---|---|---|
| viii | [yingatil] | | ix | [[yingatil]u] | |
| | y'ingatil | 1 | | y'ingatil | 1 |
| | y'ingitil | 3 | | y'ingitil | 3 |
| | | | | y'ingitilu | n.c. |
| | | | | yingit'ilu | 1 (b) |
| | | | | yingtl'u | 2 |
| | | | | ying'itlu | 5 |
| x | [ingatal] | | xi | [[ingatal]at] | |
| | 'ingatal | 1 | | 'ingatal | 1 |
| | 'ingital | 3 | | 'ingital | 3 |
| | | | | 'ingitalat | n.c. |
| | | | | ingit'alat | 1 |
| | | | | ingt'alat | 2 |
| | | | | ingt'ilat | 3 |
| | | | | inigt'ilat | 5 |
| xii | [šajar] | | xiii | [[šajar]it] | |
| | šaj'ar | 1 | | šaj'ar | 1 |
| | šij'ar | 3 | | šij'ar | 3 |
| | | | | šij'arit | n.c. |
| | | | | šj'arit | 2 |
| | | | | šj'irit | 3 |
| | | | | šj'irit | 5 |

| | Form | Rule |
|---|---|---|
| xiv | [[[šajar]it]ih] | |
| | šaj'ar | 1 |
| | šij'ar | 3 |
| | šij'arit | n.c. |
| | šj'arit | 2 |
| | šj'irit | 3 |
| | šj'iritih | n.c. |
| | šjrt'ih | 2 |
| | š'ijirtih | 5 |

| | Form | Rule |
|---|---|---|
| xv | [[[šajar]it]ani] | |
| | šaj'ar | 1 |
| | šij'ar | 3 |
| | šij'arit | n.c. |
| | šj'arit | 2 |
| | šj'irit | 3 |
| | šj'iritani | n.c. |
| | šjrt'ani | 2 |
| | šjrt'ayn | * |
| | šijirt'ayn | 5 |

| | Form | Rule |
|---|---|---|
| xvi | [[[šajar]it]ha] | |
| | šgj'ar | 1 |
| | šij'ar | 3 |
| | šij'arit | n.c. |
| | šj'arit | 2 |
| | šj'irit | 3 |
| | šj'iritha | n.c. |
| | šjir'itha | 1 |
| | išjir'itha | 5 |

For the effect of rule * in the derivation of (xv), see note 50.

Mitchell's description of these phenomena of vowel truncation and insertion is not, of course, in terms of a transformational cycle. He did distinguish between phonologically compact (symbolized by the letter V) and non-compact (symbolized by v) vowels, depending upon whether they are deleted in related forms when they (would) appear in short open syllables. Thus, he maintained that the penult i in ikt'ibat 'she wrote' is phonologically an a, whereas the i in g'assim, k'itab are phonologically i, because of their deletion in the related forms g'assmih and iktibat. There is an inconsistency here, however, since, of course, the penult of ikt'ibat is deleted in the form k'itbitih 'she wrote his/its name'. Phonologically compact vowels (regardless of their pronunciation) generally go back to Classical Arabic a, so that our postulated underlying form for kit'ab, namely katab is identically the attested form in the classical language.

Mitchell also distinguished between two kinds of anaptyctic vowels; those which bear the stress as in ying'itlu, which he called instances of v, and those which do not as in ikt'ib, which he called instances of ə,

or true anaptyxis. The distinction, however, seems to be completely ad hoc, because the anaptyctic vowel receives the stress under well-defined circumstances, and to account for it, there is no need to classify anaptyctic vowels according to whether they do in fact bear the stress (compare, especially, forms (xiv) and (xv)).

Mitchell's paper concludes with a discussion of those forms in the Cyrenaica Jebel dialect which are cognate to classical Arabic forms containing the sequence aGR, where G is the class of guttural consonants, and R consists of the liquids and m. Classical Arabic monosyllables of the form CaGR have reflexes in this dialect of the form CiG'aR; for example, corresponding to the classical form faxl 'palm-tree', is the Cyrenaica Jebel dialect form fix'al. On the other hand, classical disyllables of the form CaGRVC have reflexes of the form iCGaRVC; for example, corresponding to Classical Arabic θaʕlab 'fox', is the form iθʕ'alab. To account for these forms in the Cyrenaican dialect, we may postulate underlying forms identical with the classical forms, and that there is an early phonological rule which metathesizes the a and the guttural when they both precede

a liquid or m. Thus, by applying this rule to the underlying forms faxl and θaʕlab, we get fxal and θʕalab. Anaptyctic vowels are then added to each of these forms, but in the case of monosyllables, such as fxal, the anaptyctic vowel is inserted between the initial consonant and the guttural.

It turns out to be the case that the final vowel in the word for fox must be considered to be phonologically non-compact, because it is truncated when a vowel-initial suffix is added to the word. The word must therefore be represented θaʕlib. To specify the correct phonetic realization of this vowel, a special rule will be required which lowers vowels following a guttural and a liquid or m. The phonological derivations of the forms θ'iʕilbih 'his fox' and iθʕalabha 'her fox' from their respective underlying forms (xvii) [[θaʕlib]ih] and [[θaʕlib]ha] will now be given. The metathesis rule will be indicated as rule 0.

| | Form | Rule | | Form | Rule |
|---|---|---|---|---|---|
| xvii | [[θaʕlib]ih] | | xviii | [[θaʕlib]ha] | |
| | θ'aʕlib | 1 | | θ'aʕlib | 1 |
| | θʕ'alib | 0 | | θʕ'alib | 0 |
| | θʕ'ilib | 3 | | θʕ'ilib | 3 |
| | θʕ'ilibih | n.c. | | θʕ'ilibha | n.c. |

| Form | Rule | Form | Rule |
|---|---|---|---|
| θʕlb'ih | 2 | θʕil'ibha | 1 |
| θ'iʕilbih | 5 | iθʕil'ibha | 5 |
| | | iθʕil'abha | ** |

Rule ** in the derivation of (xviii) is, of course, the rule lowering vowels in special contexts, noted in the preceding paragraph. The antepenultimate vowel is also pronounced [a] since it directly follows a guttural (see above, p. 208), and is in an open syllable.

9. The first of J.T. Bendor-Samuel's recently published studies of the Terena language, of the Arawakan family, spoken in Mato Grosso, Brazil, deals with the first and second person singular pronouns in that language. Generally, neither of these morphemes has any phonological segment associated with it, but when they are present, they have an effect on other segments, which Bendor-Samuel called prosodic. The facts are briefly as follows. When the first person singular pronoun is attached to a noun or verb, all the vowels and glides are nasalized in that word, up to the first obstruent, starting at the beginning of the word. This obstruent, if there is any, is then voiced, and a homorganic nasal segment precedes it. The voiced counterparts to the voiceless fricatives

which Bendor-Samuel writes h and hy are both ž(which is also the voiced counterpart to š). Thus: 'ayo 'his brother', 'ãỹõ 'my brother'; e'mo?u 'his word', ẽ'mõ?ũ 'my word'; 'owoku 'his house', 'õẅõŋgu 'my house'; a'hya?ašo 'he desires', ã'nža?ašo 'I desire', etc. When a second person singular pronoun is attached to a noun or verb, if the following word begins with a vowel, a y-glide is prefixed to the word. Thus: o'topiko 'he cut down', yo'topiko 'you cut down'. If the word begins with a consonant, then the first non-i vowel undergoes a change. If it is a or o, it becomes e; if e or u, it becomes i. Thus: ku'rikena 'his peanut', ki'rikena 'your peanut'; 'piho 'he went; 'pihe 'you went'. If all of the vowels of the word are identically e, then they are all raised to i: 'nene 'his tongue', 'nini 'your tongue', etc. In certain bisyllabic nouns, the underlying vowel is not completely replaced by the new vowel, but is retained after the new vowel: 'tuti 'his head', 'tiuti 'your head'; 'paho 'his mouth', 'peaho 'your mouth'. It may be possible to account for these last examples by representing the first vowel as a double vowel: 'tuuti and 'paaho; if this can be done, and Bendor-Samuel has given no reason for excluding

the possibility of doing so, then these forms would also be regular.

Bendor-Samuel considered the first person singular form to be represented by a nasalization prosody whose focus is the beginning of the word to which it is attached, and whose domain is the sequence of segments up to the first obstruent, or the end of the word, if there are no obstruents in the word. This is to say, in effect, that there are the following phonological rules in the language:

1. I + Sg. --> [+nas ]
2. [-cons ] --> [+nas ] / # [+nas] + $[-obst]_0$ ---
3. [+obst] --> [+voi ] / [+nas] ---
4. $\emptyset$ --> [+nas] / --- $\begin{bmatrix} +voi \\ +obst \end{bmatrix}_1$
5. [+nas ] --> $\emptyset$ / # --- *

Special rules will also be required to collapse the voiced counterparts of š, h, and hy into ž. Similarly, Bendor-Samuel defined the second-person singular form to be represented by a palatalizing prosody, whose behavior is given by the rules:

6. II + Sg. --> $\begin{bmatrix} -cons \\ -voc \\ -grav \end{bmatrix}$

7. $\left\{\begin{matrix}\{[^{+diff}_{-grav}]\} \\ [^{+grav}]\end{matrix}\right\}_1 \text{ --> } \left\{\begin{matrix}[^{+diff}_{-grav}] \\ [^{-grav}_{-comp}]\end{matrix}\right\}_1 / \# [^{-cons}_{-voc}]^{-grav} + C\ ([^{+voc}_{-grav}]C)_o[^{\mp\overline{voc}}]$

8. $[^{-voc}_{-cons}]^{-grav} \text{ --> } \emptyset \ / \ \# \text{ --- } + C$

As formulated, these rules do not give the correct form for II+Sg.+nene 'your tongue', etc., but the rule can be modified appropriately to account for these forms as well.

A phonetic ambiguity can arise in Terena by application of rule 7. Thus the form 'yeno is the pronunciation of both 'yeno 'his wife' and II+Sg.+yono 'you walked'. This ambiguity causes no problems for the phonemicist, however, since it can be handled in a straightforward manner on the morphophonemic level; i.e. the forms are morphophonemically distinct, but phonemically identical, in the same way that the English homophone lives may be considered to represent two morphophonemically distinct entities, layF + Plural and layv + Plural (the latter meaning "opposite of 'stills'").

Bendor-Samuel's second paper on Terena deals with a much more significant topic than his first, namely an account of the very intricate stress pattern of the language. He observed first of all that all words except

certain particles are stressable only on one or another of its first two syllables. This he called "primary placement stress". In certain grammatically defined contexts, however, nouns and verbs may be stressed on a later syllable, either the second or the third, and this he called "secondary placement stress". Nominal and verbal roots may be exhaustively classified according to which syllable is stressed in words containing them. For example, words in which the verbal root pih 'go home' occurs, take primary placement stress on the second syllable, and secondary placement stress on the third. This fact about the root pih must obviously be considered to be an abstractly represented feature of the root itself.

Over and above the rules which assign stress to words depending on the classification of their head root, is a rule which prohibits stress from appearing on the final syllable of any word. Thus, where we would expect the form *pi'ho under primary placement, and *piho'po under secondary placement stress, neither form occurs. Rather, the penult is stressed, but with different concomitants of pitch and length of the vowel and following consonant (from, say, pi'hopo under primary placement stress). Bendor-Samuel symbolized this

stress quality with a grave accent; for typographical ease, we shall indicate it with the symbol ". Thus, in particular, for the starred forms above, we find instead "piho and pi"hopo. This phenomenon we can express by a rule which may be considered to apply after the stress placement rules:

9. $C_oV'C_oV$ # --- "$C_oV$ $C_oV$ #

Bendor-Samuel then raised the question: if piho under primary placement stress is pronounced "piho, what is its stress under secondary placement stress? According to the classification of the root pih which occurs in it, it should be stressed on the third syllable, but obviously there is no third syllable in this word. The form that actually occurs is 'piho. Suppose we try to derive this form from the stress assignment rules and rule 9. One way to try to do it would be to say that if there is no syllable for the stress placement rule to assign stress to, then the stress is assigned to the last syllable of the word, and is moved by rule 9 back to the penult. But this will not work, because we would get "piho as before. But, suppose that instead of ordinary stress, the stress which we have symbolized " is somehow assigned to the last syllable, and is moved back to the penult

by a rule opposite in effect to 9:

10. $C_o\ V\ "\ C_o\ V\ \#\ \longrightarrow\ '\ C_o\ V\ C_o\ V\ \#$

Clearly we can combine rules 9 and 10 into one rule which moves stress back one syllable from the end of the word, and which simply reverses the tonal gravity of the stress from what it was on the ultima. Making this tone, now, a property of the vowel, such a rule, carefully formulated, would read:

9'. $\left\{\begin{array}{lll} \text{a.} & \left[\begin{smallmatrix}+\text{voc}\\-\text{cons}\end{smallmatrix}\right] \longrightarrow & \left[\begin{smallmatrix}+\text{acc}\\ \alpha\text{tone}\end{smallmatrix}\right] / \text{---}\ C_o\ \left[\begin{smallmatrix}+\text{acc}\\ \alpha\text{tone}\end{smallmatrix}\right]\ \# \\ \text{b.} & \left[\begin{smallmatrix}+\text{voc}\\-\text{cons}\end{smallmatrix}\right] \longrightarrow & \left[\begin{smallmatrix}-\text{acc}\\-\text{tone}\end{smallmatrix}\right] / \text{---}\ \# \end{array}\right\}$

In rule 9', the feature of tonality expresses the gravity of the pitch associated with the two kinds of stresses. It remains now to justify a rule which would assign grave tone and stress to the last syllable of piho under secondary stress assignment.

To do this, we need to understand the relationship between the occurrence of verbal and nominal forms with secondary placement stress and the grammatical contexts in which they occur. Bendor-Samuel presented what he claimed to be an exhaustive list of such contexts,[51] and in all of these contexts except two, we find the verbal or nominal word standing in close syntactic parataxis

with either a preceding or following particle. In those two cases, it does not seem unreasonable to suppose that some covert particle is present which is also in close parataxis with the verb. Now, let us assume that in all of these cases, the verbal or nominal word together with these particles represent an immediate constituent in Terena sentences, which we may call noun or verb "extension", and let us suppose that there are no other instances of this constituent in sentences of different types from the ones listed by Bendor-Samuel. Given these assumptions, it is possible to account for the occurrence of secondary placement stress by derivation from forms in which primary placement stress is made in the underlying form, by means of a transformational cycle. In the first cycle, primary placement stress is made on all nouns and verbs in the language, and in the second cycle, which occurs only with the constituent "verb extension" or "noun extension", the stress is moved to secondary placement position. We can express (in words) the rules of the cycle as follows:

C1. Secondary stress placement. The rule (a) moves stress already assigned onto the second or third syllable, depending upon the stress-class of the main

noun or verb root, or (b) to the last syllable of the word, if there is no syllable to bear the stress under (a).

C2. Primary stress placement. The rule assigns stress and non-grave tone to the first or second syllable of the word, according to the stress class of the main root.

C3. Rule T9'.

To demonstrate the applicability of these rules, we show how to derive the stress placement in the forms (i) pi'kohiko 'they were afraid', (ii) ina'ma?ašo piko'hiko 'all the more they were afraid', (iii) pi'hopo 'he went home', (iv) inaṁa?ašo pi"hopo 'all the more he went home', (v) "piho 'he went', (vi) ina'ma?ašo 'piho 'all the more he went', (vii) "uto 'plate', (viii) u'tohiko 'plates', (ix) u'toti 'a plate'.

| | Form | Rule |
|---|---|---|
| i | $[pikohiko]_V$ | |
| | pi'kohiko | C2 (pik takes p.p.s. on second syllable) |
| ii | $[[inama?aso]_P\ [pikohiko]_V]_{Ext}$ | |
| | ' ' | C2 |
| | | n.c. |
| | ' ' | C1 |
| iii | $[pihopo]_V$ | |
| | ' | C2 |

iv [[inama?aso] [pihopo] ]
P V Ext

' ' C2; n.c.

' ' C1

' " C3

v [piho]
V

' C2

" C3

vi [[inama?aso]P [piho]V ]Ext

' ' C2

' " C3; n.c.

' " C1

' ' C3

vii [uto]
N

' C2

" C3

viii [utohiko]
N

' C2

ix [[uto]N ti]Ext

' C2

" C3; n.c.

" C1

' C3

Bendor-Samuel observed that the rules of stress placement in Terena are such that potential ambiguity between primary and secondary placement stress is always avoided. Oppositely placed stress either occurs on different syllables with the same tonality, or on the same syllable with different tonality. Bendor-Samuel, in fact, expressed belief that the stress pattern of the language arose from an unconscious effort to prevent potential ambiguities from arising. There is a certain amount of attractiveness to this argument, but why, one may ask, is the real ambiguity of the form 'yeno not similarly resolved? The interesting observation, I think, in connection with Terena stress, is that rules C1 through C3 organized in a transformational cycle are the simplest set of rules which can be written which prevent stress placement from assigning stress to the last syllable of words, and which preserve distinctiveness by means of a tonal feature. In other words, if it turns out that the analysis of Terena stress is essentially as has just been given, then we can say that the Terena child who hears such forms as pi'kohiko, ina'ma?ašo piko'hiko, "piho, ina'ma?aŠb 'piho, etc., and who knows a priori that he is able to organize certain phonological rules into

a transformational cycle, will necessarily choose the set of rules as just given to be part of his grammar of the language.

It will be noted that Bendor-Samuel did not attempt a "prosodic analysis" of the Terena stress pattern, and it is perhaps no accident that the three "deepest" phonological descriptions considered here, Allen's analysis of the Abaza verb, Mitchell's analysis of the vowel system of a Bedouin dialect, and Bendor-Samuel's study of Terena stress are not basically prosodically oriented, but go well beyond the constraints imposed by the prosodic framework, as it has been developed by the London school.

10. The phenomenon of vowel harmony has been the object of analysis in a number of recent papers by members of the London school, and three have been singled out for consideration here. In the first of these, F.R. Palmer discussed the degree of openness in the non-close (non-diffuse) short vowels of Tigre. He observed that an open front variety [a] is found (i) when the non-close short vowel is followed within a word by a long open front vowel [a:], and no other long vowel intervenes, and (ii) when a pharyngeal

or glottalized consonant follows in the same word, or if it is immediately preceded by such a consonant. Otherwise its quality is half-open and central [ɒ]. This vowel is moreover slightly fronted when it precedes a front vowel, and slightly backed when it precedes a back (rounded) vowel. The notation which Palmer devised to transcribe these facts is patently a long-component notation. Inspection of a few of his forms will readily confirm this observation. Thus, for [manka:hu], he writes α(CaCCV)w(CV); for [tɒko:bata:], he writes w(CaCV)α(CaCV), etc. The features involved in these long components are moreover subphonemic.

Natalie Waterson's account of Turkish vowel harmony is of interest because of John Lyons's later interpretation of it as an analysis which is superior to any possible phonemic or morphophonemic analysis of Turkish.[51] Lyons proposed extracting two "word-prosodies" in Turkish, frontness/backness and rounded/non-rounded, leaving "openness" as the only exponent of phonematic vowels. Thus, he proposed analyzing the Turkish word which is phonemically /gözler/ as FRgazlar, /kïzlar/ as BNkizlar, etc., where the capital letters represent the word-prosodies. But, obviously, this is long-component notation. Lyons apparently got his mistaken

idea that it was a superior notation to all possible morphophonemic ones because it happens to be superior to the one morphophonemic notion which he happened to compare it to.[53]

Carnochan's analysis of Igbo vowel harmony in prosodic terms is also a long componential analysis; no alterations have to be made in his notation to reveal this. Certain prosodies (or components) have as their domain a form of the verb and their pronominal subject, such as the prosody of tongue height R/L, while others, such as gravity, have as their domain simply the verb. What Carnochan's analysis fails to reveal is that the indication of tongue-height class must be marked on the verb. The height of the vowel in the pronoun is clearly assimilated to the height class of the verb.

It may be pointed out that practically the same kind of vowel harmony (involving the same features, and the same classes of vowels) plus an additional pair, one front and one back) is found in Twi, and for this language, Jack Berry has given an analysis of the harmony which satisfactorily reveals which vowel is assimilating which feature.[54]

## NOTES

The following abbreviations will be used here and in the bibliography: BSOAS = Bulletin of the School of Oriental and African Studies and TPS = Transactions of the Philological Society.

1. 'Prosodies in Siamese: a study in synthesis' Asia Major (n.s.) 1 (1949), pp. 189-215.

2. 'Some prosodic aspects of retroflexion and aspiration in Sanskrit' BSOAS 13, part 3 (1951), pp. 937-946.

'Retroflexion in Sanskrit: prosodic technique and its relevance to comparative statement' BSOAS 16 (1954), pp. 556-565.

3. 'Aspiration in the Hārautī nominal' in Studies in linguistic analysis, op. cit., pp. 68-86.

4. 'Structure and system in the Abaza verbal complex' TPS (1956), pp. 127-176.

5. 'A study of quantity in Hausa' BSOAS 13, part 3 (1951), pp. 127-176.
'Glottalization in Hausa' TPS (1952), pp. 78-109.
'Gemination in Hausa' in Studies in linguistic analysis, pp. 149-181.

6. 'Vowel nasality in Sundanese: a phonological and grammatical study' in Studies in linguistic analysis, op. cit., pp. 87-103.

7. T.F. Mitchell, 'Prominence and syllabification in Arabic' BSOAS 23 (1960), pp. 369-389.

8. 'Some problems of segmentation in the phonological analysis of Tereno' Word 16 (1960), pp. 348-355.

9. ' "Openness" in Tigre: a problem in prosodic statement' BSOAS 18 (1956), pp. 561-577.

10. 'Some aspects of the phonology of the nominal forms of the Turkish word' BSOAS 18 (1956), pp. 578-591.

11. 'Vowel harmony in Igbo' African language studies 1 (1960), pp. 155-163.

12. G.L. Bursill-Hall, op. cit., p. 172.

13. 'Prosodies in Siamese', p. 190.

14. This formula may be considered to be an abbreviation for the morpheme structure rules (viewing the monosyllable as a morpheme for the purpose of the discussion) which supply the redundant features which can be predicted on the basis of the characteristic consonant-vowel patterns of morphemes.

15. Rule 1 is an abbreviation for the separate rules

1a. [+cons] --→ [+voc ] / [+cons] ---

and

1b. [+voc ] --→ [+cons] / [+cons] ---

16. The $\alpha$ in rule 12 is a variable ranging over the values + and -. Thus the rule expresses the statement that a glide has the same gravity as the preceding consonant. Rule 15 says simply to replace the elements 1 and 2 with the element 1 which is further specified as being voiced and strident.

17. We adopt the convention that the two parts of compound words are separated by a single word-boundary. When two independent words come together, they will be separated by two word-boundaries.

18. Cf. A.A. MacDonell, A vedic grammar for students (Oxford, 1916), p. 9: "The cerebral ṇ appears within a word only ... replacing dental n after r, ṛ or ṣ (either immediately preceding or separated from it by certain intervening letters)."

19. 'General linguistics in Great Britain', p. 30.

20. 'Some prosodic aspects of retroflexion', p. 946.

21. 'Aspiration', p. 72. 22. Ibid., pp. 81-83.

23. Ibid., p. 83. 24. Ibid., p. 86.

25. Ibid., p. 70.

26. 'Structure and system in the Abaza verbal complex', p. 142.

27. Since for purposes of the discussion only vowels with main stress or secondary stress are being considered, we may designate secondary stressed vowels as being unstressed.

28. 'Structure and system', p. 142.

29. For typographical convenience, we have altered considerably Allen's orthography in our Abaza citations. Main stress is indicated with a mark preceding the vowel. All y and w are written on the line. Allen's ə is written e, as we indicated, p. 176, and his ʃ and ʒ are written S and Z respectively. Glottalized consonants are indicated with a raised ʔ following the consonant symbol.

30. Brackets labelled with grammatical categories such as P or Root enclose the forms which designate those grammatical categories. Both left and right brackets are labelled, whence the two P's in rule 4.

31. 'Structure and system,' p. 148, n. 1.

32. Ibid., p. 151. 33. Ibid., pp. 133-134.

34. Note that this is not a transformation rule as such. Classificatory rules may be considered to be a special kind of lexical rule, and apply together with the other lexical rules after the phrase-structure expansion rules.

35. 'Structure and system', pp. 158-159.

36. Ibid., p. 163.

37. The argument cannot be made convincing in the case of Abaza, at least from considerations of the examples in Allen's discussion. A fairly convincing argument of this sort, however, can be made for Mundari; see my 'Fragment of Mundari syntax' (unpublished).

38. 'Glottalization in Hausa', p. 78.

39. 'Vowel nasality in Sundanese', p. 87.

40. Ibid., p. 90. 41. Ibid., pp. 91-92.

42. Ibid., p. 93.

43. IJAL 25 (1959), p. 258.

44. The following conventions will be adopted in citing Arabic forms. Following Mitchell, we will designate the long vowels by means of double vowels. Stress will be indicated by a raised mark preceding the vowel; emphatic consonants by a line through the consonant symbol; Mitchell's ʕ will be written ʕ. We shall make no distinction corresponding to his a and ɑ, and shall always write a, since the quality of the low vowels presumably can be predicted from the consonantal environment.

45. 'Review of R.S. Harrell, The phonology of colloquial Egyptian Arabic' BSOAS 21 (1958), p. 636.

46. Ibid.

47. 'Prominence and syllabification in Arabic', p. 386.

48. Ibid., p. 379.

49. On the notion transformational cycle, see for example N. Chomsky and G.A. Miller, 'Introduction to the formal analysis of natural languages' in Luce, Bush and Galanter (eds.), Handbook of mathematical psychology, Volume II (New York, 1963), pp. 314 ff.

50. Because of the presence of the emphatic (r) in this form, the vowels in short open syllables in this form and the following will generally be, in Mitchell's transcription u, but for simplicity in following the derivation, i has been used throughout. Note that the affix -it when in word-final position is pronounced ih (or ɑh, if it follows an emphatic). When the ending -ha is added to a form ending in a voiceless consonant, that consonant is geminated, and the h is deleted.

In order for rule 2' to apply properly on the last cycle in (xv), the dual suffix must be represented as a disyllable. Therefore, a rule is required to metathesize the final i of -ani; we have symbolized that rule by *.

51. 'Stress in Terena', pp. 117-118.

52. 'Phonemic and non-phonemic phonology:some typological reflections' IJAL 28 (1962), pp. 127-134.

53. Ibid., p. 131. The morphophonemic analysis with which he compared it was that of C.F. Voegelin and M.E. Ellinghausen, 'Turkish structure' JAOS 63 (1943), pp. 34 ff.

54. 'Vowel harmony in Twi' BSOAS 19 (1957), pp. 124-130.

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