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The workpapers in this volume grew out of material presented for S.I.L. linguistic consultants at a seminar held at Ukarumpa in Papua New Guinea. Those present there expressed the desire to have under one cover all the papers given at that time. Most of these papers were revised before printing to incorporate comments from the discussions which followed their oral presentation.

Richard Loving,
Editor.

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INTRODUCTION

The papers, outlines, and notes in this volume come out of the seminar that was held at Ukarumpa, Papua New Guinea, September 22 - October 5, 1976, for S.I.L. linguistic consultants from the Australia - Irian Jaya - Papua New Guinea area. (Regrettably the Irian Jaya consultants were unable to attend.) The purpose of the seminar was to discuss and share linguistic and related topics of interest to S.I.L. consultants. Handouts were prepared in advance for most sessions, and after the sessions the handouts were revised to incorporate comments from the discussion and to add further bibliography. Those revised handouts, with a few lacunae, comprise the present volume.

The papers in this volume cut across large areas of language structure, and almost all are of general application, not limited to just one language. I trust that this volume will be a sourcebook for ideas for S.I.L. consultants, and others of like interests, around the world.

David Thomas

1976

A PROPOSED LANGUAGE MODEL

David Thomas

Summer Institute of Linguistics

	Conversation	Discourse	
	Utterance	Paragraph	
	Breath Group	Sentence	
Phonetics	Pause Group	_____	Semantics
(Sounds)	Foot	Clause	(Meanings)
Phonology	_____	_____	Grammar
	Syllable	Phrase	
	_____		
	Phoneme	Morpheme	
	Dist. features	Sem. components	

TENTATIVE DEFINITIONS

These definitions or characterizations are general norms, which individual languages may reinterpret in different ways.

Phonological Hierarchy

Distinctive features: the emic articulatory/acoustic characteristics.

Phoneme: a minimum significant systemic linear segment of sound.

Syllable: a stretch containing a vocalic pulse with any onsets and codas.

Foot: a stretch containing a stressed syllable and any associated unstressed syllables.

Pause Group: a stretch between potential or actual pauses, containing one or more feet.

Breath Group: a stretch uttered in a single breath, containing one or more intonation spans.

Utterance: a stretch uttered by one speaker with terminal silence before and after.

Conversation: a stretch containing a single language-using situation, covering one or more utterances.

Note that distinctive features often have prosodic functions.

Grammatical Hierarchy

The grammatical hierarchy is complex, containing parallel deep structure, surface structure, and encyclopedia elements. Deep structures are most commonly manifested by their parallel surface structures, though they may freely be manifested by other ranks (levels) of surface structure. The encyclopedia structures give taxonomic, synonymic, antonymic, collocational, and other similar information.

Semantic components: the emic real-world features.

Morpheme: the deep morpheme is the minimum segment of meaning that has surface manifestation (e.g. 'big'). The surface morpheme is the minimum manifesting segment that has meaning (e.g. big). The morpheme encyclopedia structures include taxonomies, classifications, components, and collocations. This is the dictionary rank (level) of a language.

Phrase: the deep phrase is the minimum unit of identification or description composed of a head morpheme plus any modifiers (e.g. Item - house, Quantity - two, Quality - big) (Action - run, Phase - linear, Quality - fast). A surface phrase is a stretch containing at least one morpheme, identifying a clause role or predicate (e.g. two big houses, running fast). The phrase encyclopedia structure gives information such as synonymity/contrastive relations between participants in a discourse, and collocational restrictions between heads and modifiers (e.g. John = my uncle = the man wearing an overcoat = he).

Clause: the deep clause is the minimum unit of described action (predication) composed of an action plus any associated role fillers (e.g. Predicate - saw, Actor - Bill, Patient - the dog). A surface clause is a stretch containing a predicate and any identified participants (e.g. Bill saw the house). The clause encyclopedia structure gives information such as synonymity/contrastive relations between events in a discourse, and collocational restrictions between events and participants (e.g. John ran away = his action = John's fleeing = that).

Sentence: the deep sentence is the minimum unit with illocutionary force and a locution; the locution may contain one or more related events or descriptions (e.g. Cause - the bull saw red, Result - the bull charged the matador, Illoc. force -

statement). A surface sentence is a stretch containing at least one main clause, with any dependent clauses (e.g. The bull charged the matador because it saw red). The sentence encyclopedia structure gives information such as the logical and implicational chains and collocational restrictions in the cultural setting of the discourse (e.g. bull-fighting collocational implications may be assumed in Spanish cultural setting, not in British cultural setting).

Paragraph: the deep paragraph is the minimum unit with a purposeful wave of illocutions having a common topic or focus, a common set of major participants, location, general time, and vantage point. A surface paragraph is a stretch of one or more sentences with a common time and location horizon and a common focus. The paragraph encyclopedia structure gives information such as the speaker's vantage-point, and speaker-hearer relations and restrictions.

Discourse: a deep discourse is a unit embodying all the discussion on a subject. A surface discourse is a stretch of one or more paragraphs with a common theme. The discourse may be viewed perhaps as simply an independent paragraph structure.

TRANSFORMATIONAL INTERRELATIONS OF STRUCTURES

Surface structures are considered to be manifestations of deep structures. The various surface structures manifesting the same deep

structure (whether on the same or different surface ranks) are considered to be transforms of each other. When manifested on a lower rank the transform is generally seen as an embedding.

A deep structure morpheme may be commonly manifested (conditioned or freely variant) as a surface morpheme (e.g. house) or a phrase (Jack-in-the-pulpit).

A deep structure phrase (Item - man, Quality - tall, Definiteness - the) may be commonly manifested as a surface structure phrase (the tall man), a clause (the man being tall), or a simple sentence (The man is tall). Also (Item - George, Description - king) becoming King George or George is king.

A deep clause (Predicate - ran away, Actor - the man) may be commonly manifested as a surface clause (the man ran away), or a simple sentence (The man ran away), or as a surface phrase (the man who ran away).

A deep sentence (Condition - John comes, Consequence - you will talk to him, Illoc. force - interrogative) may be commonly manifested as a surface sentence (If John comes, will you talk to him?), a clause (asking you whether you would talk to John if he comes), or a simple paragraph (I asked if you would talk to John if he comes.).

A deep paragraph (Time - the next morning, Location - Mudville, Topic - everyone sad) may be commonly manifested as a surface paragraph (The next morning, July 8, everyone in Mudville was sad. Casey had struck out.), a surface sentence (This was because everyone in Mudville was sad that morning, mighty Casey having struck out the day before.), or a simple discourse (On July 7, 1898, mighty Casey, the town hero, struck out. So the following morning everyone in Mudville, Tenn., was sad.).

A deep discourse may be commonly manifested as a surface discourse (The Tale of Casey. In Mudville, Tenn., Casey, the slugger on the baseball team, was the town hero. On July 7, 1898, Casey struck out in a crucial game, to the disappointment of the entire town.), or a surface paragraph (To illustrate my point, I'll tell you about Casey. Casey, the town hero of Mudville, Tenn., struck out in a crucial game on July 7, 1898, disappointing the entire town.).

GENERAL PROCESSES AND PROSODIES

There are some language processes which may be applied on any rank (level) in the structure.

Negation: morpheme negation (illogical, non-unique), phrase negation (not the man in the brown coat, didn't go), clause negation (not because I didn't want to, not in order to get better), sentence negation (It's not the case that he was absent.).

Foregrounding: On the phrase rank the noun head (verb head, etc.) is commonly but not necessarily foregrounded. On the clause rank one or another of the participants may be foregrounded (active vs. passive, etc.). On the sentence rank one of the clauses is usually given the status of main clause, with the other clauses as subordinate clauses. On the paragraph rank one sentence is usually the topic sentence. On the discourse rank one paragraph is usually the climax of the discourse, with the other paragraphs building up to or stepping down from the climax.

Compounding:

Contrastive compounding: verb phrase running fast but effortlessly; noun phrase the small but heavy man; clause not John but Bill went; sentence Because John was sick but Bill wasn't, only John went to the doctor.

Equivalent compounding (there may be varying degrees of equivalence, from identical repetition to loose paraphrase): verb phrase running fast, swiftly; noun phrase the heavy 250-pound man; clause John, Mary's father, went; sentence Because John was sick (he had malaria), he went to the doctor.

Alternative compounding: running either fast or carefully; noun phrase one or another of the men; clause either John or Bill will go; sentence I called the doctor because

either John was sick or I don't know sickness when I see it.

Additive compounding: verb phrase running fast and carefully; noun phrase the dark 250-pound man; clause John and Bill went; sentence Because John was sick and Mary had an appointment, neither one went to the party.

Unit Cohesion: A phrase may have concord between the elements in the phrase, thus marking it as a single whole. A clause may have agreement between the subject and predicate, linking them together as a unit.

Class, Construction, and Case Marking: At the phrase rank the various word classes may be marked (-ly, -ness, -ship, -like, -ish, etc.). At the clause rank the various participant roles may be marked (with, to, by, from, etc.). At the sentence rank the clause roles may be marked (because, in order to, after, therefore, etc.).

DEBTS

This proposed model owes to Kenneth Pike the concepts of plural hierarchies, emicness, manifestation, and roles (with Charles Fillmore), to Robert Longacre the higher grammatical levels and the interaction between deep and surface structures, to Zellig Harris transformations, to Henry Hiz batteries of transformation, to Harold Conklin lexemes, to John Crawford, David Bendor-Samuel, and Kenneth Pike some of the higher-level phonology, to Eugenie Henderson and

others some prosodic concepts, to J.L. Austin, J.R. Searle, and others the terms 'locution' and 'illocution', to Joseph Grimes the term 'encyclopedia' and some of the features of the encyclopedia structure, and to Alan Healey, Bruce and Barbara Hollenbach, George Huttar, and others, many details not apparent from this sketch.

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Note: It will be noticed that this framework sets up neither word nor stem (nor several other possible levels) as universally motivatable levels, since such levels seem to require language-specific definitions. And the word, especially, is often defined either phonologically or pragmatically rather than semantically.

COMMENTS ON THOMAS' PROPOSED MODEL

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David Thomas' "A Proposed Model of Language" (1975) contains a number of useful and suggestive ideas, besides synthesizing a wide range of linguistic (especially grammatical) phenomena in a way helpful to students. My purpose in adding some comments here is to increase the helpfulness of Thomas' paper by making explicit some of the assumptions underlying it, suggesting one or two modifications, and developing one of the ideas I have found particularly worth pursuing. I also explain, from personal communication with Thomas, one or two notions only hinted at in his article.

The union of grammar (syntax) and semantics as over against phonology (phonetics and phonemics) has a certain appeal in that grammar is in some sense "closer" to semantics than is phonology. For example, it is easier to map regular differences in meaning to contrasting grammatical units than to contrasting phonological units.

It is also appealing, because useful, to have a set of definitions for terms referring to semantic units (Thomas' "deep" units) that can be applied to any language. But if the semantic and grammatical components (which may be, e.g. hierarchies) are too closely wedded, there is the danger that the universal definitions

for the one component will lure us into assuming the possibility of universal definitions for the other. It may be that universally useful definitions for grammatical levels can be found, but: (1) that possibility does not follow from our coming up with such difinitions for semantics; and (2) (obviously) I doubt it.

Generally, I doubt it because I believe that the realm of human experience and thought - despite vast differences in environment, material culture, and world view - is everywhere the same in a significantly greater way than are the surface structures of human languages. Specifically, I doubt that generalizations about grammatical structure can be most simply expressed for most languages with only one hierarchical level posited between morpheme and clause. For many languages, though admittedly quite likely not for the Mon-Khmer languages with which Thomas has worked in such depth, I believe simpler descriptions are possible if we posit two levels between morpheme and clause. These levels can usually be called "word" and "phrase".

Linking grammar and semantics too closely in theory also makes it difficult to keep them apart in practice. That is why, I suspect, Thomas has fallen into the error (so besetting to us all, alas!) of defining grammatical units in terms of semantic features. Thus "a surface paragraph is a stretch of one or more sentences with a common time and location horizon and a common focus"; and a surface discourse

is defined in terms of "a common theme" (p.10). These criteria may be intended as grammatical, but they certainly sound semantic. (Incidentally, using identical sets of terms for both grammar (Thomas' "surface") and semantics (Thomas' "deep") does have the advantage of reducing the number of terms to remember. But it also makes it all the more difficult to keep grammar and semantics apart. Contrastive terminology for the two components would be very helpful, even if obtained only by adding a G or S to every use of one's terms.)

Let us turn now to some of the specific definitions given. Thomas' deep phrase is defined as "the minimum unit of identification or description..." (p.9). Identification, yes - for I believe the typical communicative function of phrases is to identify (label, single out for attention) items to be talked about (see "Some Thoughts on Clauses" in this volume and, for a more detailed treatment, Huttar, 1973). But description, no - at least, not as Thomas is using it here, to include the deep counterpart of The man is tall (p.11).

Putting this sort of "description" in with identification seems to me to lead us in the wrong direction. Except in very unusual circumstances, a (grammatical) phrase like the tall man is used to identify an item about which one wishes to talk, as in Is the tall man your father? or Ask the tall man to come here, please. In neither example is one describing the man as tall in the sense of telling one's hearer that the man is tall. Rather the speaker

presupposes that the hearer knows what man he is referring to when he says the tall man, and then goes on to say something about that man (cf. Strawson, 1971:89).

It is quite a different story with The man is tall. Such a sentence is normally used to inform (or to remind - at any rate, to assert to) one's hearer that the man in question is tall. The speaker is then describing the man as tall - he is not identifying him as tall; he is identifying him only as the man already known by both himself and his hearer to be the topic of conversation.

To treat identification and description as essentially the same sort of communicative act is to obscure the fundamental distinction between referring and predicating, a distinction commonly assumed by logicians, philosophers of language, and linguists. While we are not required to accept as helpful for linguistics all the tools of the first two of these disciplines, we should have good reason for rejecting a notion that scholars in these fields evidently have found useful for centuries.

And Thomas does not put the semantic counterparts of the big house and The house is big into the same category without a reason. His reason is revealed in his definition of the deep clause as "the minimum unit of described action (prediction) composed of an action plus any associated role fillers..." By "action" here Thomas

consciously means to exclude states (such as being tall). The major semantic break comes between actions on the one hand (deep clauses) and states and identificational labels on the other (deep phrases).

I suggest that it is more useful to posit the major break between propositions on the one hand (including those about states and processes as well as actions) and identificational labels on the other. I say this not only to align myself with Chafe (1970), Longacre (1976) and most other contemporary linguists. I also say this in order to avoid the problem of where to draw the line between deep phrase and deep clause in the set of semantic units represented by the following:

The road is wide.

The road became wide.

The road was widened.

The workmen widened the road.

If we follow the standard distinction between reference and predication, we have no problem; all of these represent propositions ("deep clauses", if you will).

On another level, Thomas' definition of deep sentence as "the minimum unit with illocutionary force..." (p.9) sets it neatly off from the deep clause. A deep clause has no illocutionary force; a deep sentence does. A deep clause then corresponds closely to Searle's (1969:29) proposition, while the deep sentence corresponds to one or more propositions plus their common illocutionary force.

Although I have not attempted to incorporate this idea into "Some Thoughts on Clauses", I find it very appealing. It suggests an analogous difference between clause and sentence as grammatical units, with clauses being defined in such a way that they contain no indicators of mood (the grammatical analogue of illocutionary force), and sentences being defined as one or more clauses plus the mood markers which have all those clauses as their domain. Roughly, Sentence = Propositional Content; Clause^{n} + Illocutionary Force: Mood (cf. Searle, 1969:30).

For English data like You're going. vs. You're going?, this analysis would have the first slot of each sentence filled by the clause you're going, and the second slot filled by the intonation contours . and ?, respectively. Such a division of the sentence accords exactly with a suggestion made to me by Sarah Gudschinsky in 1971 when I was writing Huttar (1973), that sentences could possibly be viewed as clause + intonation. It is also essentially the analysis of Stockwell (1960:360), following Hockett (1955:151).

For other sentences, like You are going. and Are you going?, a more abstract approach would be required, the second slot of the second sentence being filled by ? plus a metathesis rule (something like S Aux → Aux S). For languages in which mood is regularly marked by verb affixation, the mood affixes, although bound phonologically to the verb, would be treated as fillers of a sentence-level slot.

Such a treatment was suggested to me by Marshall Lawrence's well presented case, outlined in this volume, for treating Oksapmin tense as well as mood as functioning on the sentence level, even though the tense and mood markers are, from a phonological point of view, "part of" the verb. A similar approach is taken by Naomi Glock (1972), where tense, polarity (negation) and even subject are all treated as sentence-level functions rather than clause-level functions.

Lawrence's and Glock's articles suggest that, as it may well be useful to distinguish two levels in the semantic hierarchy by inclusion vs. exclusion of illocutionary force (Thomas' deep sentence and deep clause), it will likewise most probably be useful in the description of many languages to distinguish clause from sentence level by including in the latter primarily mood, but also other functions that can have more than one clause as their domain. Some of these functions, as Lawrence points out, may well turn out to belong to higher levels yet than sentence.

I have just developed Thomas' fruitful distinction between deep clause and deep sentence in terms of illocutionary force. I will conclude by mentioning some of the other contributions in his proposal that I feel particularly worthy of closer examination:

(1) the claim that syllable and clause are significantly different levels of combination from phoneme and phrase, respectively,

while not as fundamentally different from foot and sentence (this claim is what is meant by the heavy lines separating "Syllable" and "Clause" from the other units in their respective hierarchies);

(2) *the identification of encyclopedic structures at each level* of the grammatical hierarchy;

(3) the treatment of negation, foregrounding, and other semantic processes as prosodic (operating over large stretches) and as a applicable to all levels.

In short, I am grateful for Thomas' describing his model for us so clearly. While I take issue with him at some major points, the suggestions I have made here could be accommodated into his model without requiring any radical modifications. As he points out (p.7), his definitions are only tentative. And even as it stands, the model has already proved its value by the lines of pursuit it suggests for a better understanding of languages around the world and of language in general.

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WHAT IS TAGMEMICS?

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There doesn't seem to be a simple answer as to what tagmemics is. Historically, of course, it is the approach to language that was first set in motion by Kenneth Pike more than two decades ago and of which he has remained the most prominent spokesman. But tagmemics has grown, changed, and diversified over these two decades, as any live theory must do, and one can no longer define tagmemics simply as "whatever Pike says". So it is to be asked what it is that people who are content to call themselves tagmemicists have in common.

Tagmemics is not a system of notation; the "standard model" notation of slot:filler is used by some linguists, not by others. And other notations and representations are continually being experimented with. Neither is it a special way of drawing trees or charts; the forms of graphic displays are irrelevant. Rather there seem to be both theoretical and attitudinal characteristics.

I. PIKE'S TWELVE BASIC TENETS

Pike (1964a, 1964b, 1976; Hale, in press) has stated his belief that certain universal invariants underlie all human experience as characteristics of rationality itself, and thus also as characteristics of language. Anyone who subscribes to the validity of the following twelve points, Pike would consider to be a tagmemicist:

A. Units: the mind perceives and recognizes discrete entities, with boundaries and closure, with the following characteristics:

1. Contrastive-identificational features
2. Variation
3. Distribution (class, sequence, system)

B. Hierarchy: part-whole relations of the following types:

1. Semantic, lexical: purposeful content
2. Phonological: physical content
3. Grammatical: structured arrangement

C. Context: unit-unit relations as social behavior:

1. Units are form-meaning composites
2. Units always occur in a universe of discourse
3. Impact or change is always carried over a bridge of shared components

D. Observer: units may be looked at from different perspectives:

1. Particle: the normal point of view
2. Wave: viewpoint over time
3. Field: paradigmatic relations with other units

(If the wording of these differs any from Pike's intent, the fault is mine and not intentional. Similarly for the following section.)

II. LONGACRE'S FOUR FUNDAMENTAL INSIGHTS

Longacre (1965), restated by Fries (1974), presented four points which would probably be accepted in some form by most if not all tagmemicists:

1. Tagmemes: the correlativity of function and set
2. Strings: the search for constructions of maximum relevance
3. Hierarchy, explicit and systemic
4. Parameters in logical space: matrices with multiple parameters (with transformation only one of the possible parameters which relate constructions)

III. SOME GENERAL ATTITUDES OR TENDENCIES

Beside the objective tenets of theory cited above there seems also to be a set of attitudes or tendencies which often characterize tagmemicists. Different proponents of tagmemics, of course, have these characteristics in different degrees. The following listing is just a preliminary attempt at capturing this characteristic tagmemic point of view:

1. More interest in anthropological linguistics than in formal or mathematical linguistics
2. An emphasis on emic description more than on abstract theory
3. A preference for empirical additions to inductive theory rather than empirical testing of deductive theory
4. An emphasis on practical heuristic techniques for analysis
5. An emphasis on the whole of language as well as on detailed parts

6. Strong interest in practical applications to translation, literacy, and language learning
7. A tendency to postulate no semantic layers deeper than absolutely required by surface forms and transformations
8. An emphasis on string relations

Note also the remarks in the introduction to Hale 1974. It is not intended to imply that other linguists do not also have these attitudes, but rather that these as a set seem to characterize tagmemicists.

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MOTIVATING TAGMEMIC CONCEPTS

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I SUMMARY OF HUDDLESTON'S ARTICLE "THE SYNTAGMEME"

Huddleston's (1971) article examines the concept of the syntagmeme in the light of Longacre's "dual structural criterion", the latter being the notion that two (at least) differences are needed for contrast between syntagmemes. Huddleston's main thrust is that the notions of contrast and variation, while well-motivated linguistically in classical phoneme theory, are not at all well-motivated when considering grammatical constructions. The dual structural criterion, which is founded on the assumption that contrast between and variation within grammatical constructions is well-founded, is at present the only universally applicable criterion which has been put forward as a means of uniting syntagmas (Huddleston's "grammatical constructions") into syntagmemes (leaving aside the alternative criterion of using native-speaker intuitions).

In relation to the syntagmeme concept, there are three problems to be dealt with. The etic/emic distinction (reflected in the name syntagmeme), the contrast/variation distinction (since the syntagmeme is assumed to contrast with other syntagmemes at that level, but not contrast with its various manifestations), and the dual structural criterion (which is used to "discover" syntagmemes). Firstly, we must

ask if the dual structural principle is an appropriate criterion for uniting syntagmas - that is, does it have sound linguistic motivation? Secondly, what do "contrast" and "variation" mean, if anything, when applied to grammatical constructions? Thirdly, in the grammatical hierarchy, how appropriate is it to equate the etic/emic distinction with the notions of contrast and variation? In classical phoneme theory the concepts etic/emic and contrast/variation amount to much the same thing. It is then assumed, without a shred of evidence, that emic versus etic is equivalent to contrast versus variation at every other point in the tagmemic model - in particular, within the grammatical hierarchy. However, it should be clear that emic elements must be those elements with respect to which native-speakers have intuitions (that is, they are what such a person "knows" about his language - even though the majority of such knowledge may be subconscious). In this sense, every grammatical element must be viewed as emic, since to change one such unit for another will always produce a native-speaker response. Indeed, this is a significant blind spot in tagmemic theory. No one has yet produced any evidence that the etic/emic distinction is appropriate to the grammatical hierarchy.

In his article, Huddleston asserts the following:

(1) that the dual structure criterion lacks linguistic motivation,

(2) that the notions of contrast and variation, as applied in classical phoneme theory, cannot be applied in the grammatical hierarchy, and

(3) that the etic/emic distinction has no relevance for grammatical constructions.

Huddleston gives both theoretical and empirical grounds for his assertions, a detailed account of which was presented during the seminar this paper was given. I do not intend to reproduce his arguments here, but would recommend that his article be studied in detail.

In this paper, I will contend that Huddleston's assertions (1) and (3) are valid, but that assertion (2) may be made void by redefining what is meant by the notions of contrast and variation. Of course, we could define contrast (and variation also) in any of a number of ways, but there would be no reason why the result should be linguistically insightful. So whatever content we give to the words "contrast" and "variation", the following constraint must apply: "contrast and variation (re-interpreted) must be applicable to both grammar and phonology, and in particular, they must lead to the same classification of contrastive units at the phoneme level as do the classical definitions of contrast and variation at that level". Peter Fries (1974) has laid the foundation of such a definition of contrast as "contrast in field". This is an extension to the grammatical hierarchy of contrast as defined by significant oppositions of phonetic distinctive features. However, Fries does not see any need to subtract semantics from the re-interpreted notion of contrast; but unless he does this, Huddleston's criticisms are no less apt than before.

I shall show later how contrast and variation can be defined in such a way that the above constraint is satisfied, and at the same time, Huddleston's criticisms avoided.

II MATRIX REPRESENTATIONS

Do we have any alternative approach for describing structure? Huddleston invokes Pike's (1962) idea of matrix theory, saying (p. 41) "this innovation undoubtedly constitutes a significant improvement in the tagmemic model". But he goes on to say, "I would claim that it has not as yet had its due impact on the theory - that it has not in fact been satisfactorily incorporated into the model". Before dealing with the difficulties of matrix theory in tagmemics, let us consider how it is useful.

Huddleston states (p. 41) "matrix theory removes the need for the arbitrary dual structural criterion - or any other criterion for a syntagmeme/allosyntagma distinction: there will be as many distinct construction types as there are different combinations of variables. Thus to compare two constructions it will be sufficient to show what structural properties they have in common and along what dimensions they differ; we do not need to ask the further question whether their differences are sufficient to establish them as emically distinct rather than variants (allos) of a single syntagmeme". Conceivably, matrices could be used to present information of this type. Therein lies their usefulness.

Turning now to the problems inherent in matrix representation, let us consider the following six sentences given by Huddleston:

(1) John saw Peter. (2) John saw Peter yesterday.

(3) Peter was seen by John. (4) Peter John saw.

(5) Did John see Peter? (6) When did John see Peter?

The following dimensional values are relevant for the construction of a matrix illustrating the relationship obtaining between these sentences:

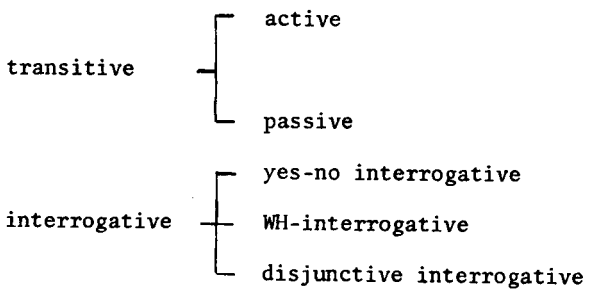
a. transitive/intransitive b. active/passive

c. specified time/non-specified time d. declarative/interrogative

e. yes-no interrogative/WH-interrogative

f. marked theme/unmarked theme.

Some of these dimensions are inter-dependent. Transitives may be either active or passive, while interrogatives may be further subdivided into yes-no interrogatives and WH-interrogatives. (We can add disjunctive interrogatives as a further value.)



Disjunctive interrogatives may be exemplified by constructions of the type:

(7) Did John go to town or did he go to Mary's house?

Hence we see that dimensions a. and b. are inter-dependent, as are d. and e. So there are only four independent dimensions in the above data (excluding sentence (7), namely a., c., d. and f.)

We encounter problems when we construct two-dimensional charts for contrasts involving more than two independent dimensions. Firstly, there is a lot of arbitrariness inherent in the choice of which dimensions to take as "primary". For argument's sake, let us consider only the above-mentioned independent dimensions. For the two charts which follow, which is the better?

		marked theme		unmarked theme	
		spec. time	non-spec. time	spec. time	non-spec time
trans.	interrog.				
	declar.				
intrans.	interrog.				
	declar.				

Chart 1.

		interrog.		declar.	
		spec. time	non-spec. time	spec. time	non-spec. time
marked theme	trans.				
	intrans.				
unmarked theme	trans.				
	intrans.				

Chart 2.

Of course, both charts handle the same facts, and two more equivalent charts could also be constructed from these four independent dimensions. Given that one is chosen, the reader of the chart is apt to gain the erroneous impression that the "outer" dimensions on the chart are more "basic" or "primary" in some sense. This confusion arises because charts need to include the dependent dimensions as well as the independent ones - and in this case, one dimension <u>is</u> "primary".

For example:

		X	Y
interrog.	WH-interrog.		
	yes-no interrog.		
	disjunctive interrog.		
declarative			

Chart 3.

Here, interrogative is more "primary" than WH-, yes-no or disjunctive interrogatives. But in chart 2., for example, it would be a mistake to think of "marked theme" as more primary than "transitive" or "intransitive".

Secondly, the more dimensions that are put on a chart, the greater the complexity, the greater the frequency of empty "boxes" in the chart, and the harder it becomes for the reader to gain insight into the language's structure. For example, for the six sentences above, a minimum of six rows and four columns would be needed (that is, twenty-four boxes) for just six sentences. Clearly, as we expand our data, we expand the matrix rapidly, and there is a limit to what can be fitted on a page.

Huddleston also criticizes matrices on the grounds that they are, as Postal (1966) put it, "ad hoc devices thrown in to talk about the relations between sentences", and, as such, constitute only an informal addition to a theory, rather than a formal generative device. This is not to say that they are valueless - for as far as description is concerned, they can be quite useful. But Huddleston's point is that they are not "generative" in the sense that tagmemic formulae are. His argument is more detailed than this, and is well worth careful consideration. Of course, by "generative" we mean this in the Chomskian (1964, p. 51) sense. That is, not simply that a non-deviant terminal string is generated, but also that the structural description

assigned to the string mirrors native-speaker intuitions (that is, has "descriptive adequacy" (Chomsky, 1964, p. 63)).

III THE ALTERNATIVE PROPOSALS OF BEE AND OF FRIES

Darlene Bee and Peter Fries both claim to have well-motivated criteria for treating contrast in syntax.

Bee uses a weighting system. Constructions may vary with respect to function, class or distribution. She asserts, without empirical evidence, that distribution is by far the most important factor of the three. Quantitatively, she claims that distribution is twice as important as each of function and class, as far as the assigning of "weights" is concerned. To decide whether two constructions should be united into the one "emic" construction type, one applies the following procedure. Each construction must be evaluated so as to determine what factors are involved (i.e. functions present, filler classes, order, etc.) and depending on whether each is the same, similar or different when compared with the corresponding factor in the other construction, numerical values ("weights") are assigned for each such factor and the sum taken, for each construction, over all the factors involved. According as this sum is low, high, or intermediate; the constructions will be variants of one "eme", realizations of two different "emes", or of uncertain status, respectively.

The system of weighting is not language specific (if it were, it would probably be far more useful as a tool for "discovering" native-speaker intuitions or, at least, approximations thereto) but is set up as a wholly etic grid. She claims "...this is taking a rather drastically different view of the analysis of tagmemic units than has been taken before, and it means we will have to cover quite new ground". I suspect, however, that her claim is somewhat of an over-statement. She includes transformation potential as one possible mode of contrast, so that by treating active/passive clause pairs as "variants" of one clause type, she avoids one of Huddleston's criticisms (Huddleston, 1971, p. 40). Nevertheless, the theoretical difficulties outlined by Huddleston still apply. Firstly, the method she proposes is scarcely less ad hoc than is Longacre's. His method implies "there must be at least two differences - but differences are only highly significant if nuclear tagmemes are involved"; while Bee's method implies "there will probably be several differences, many of which will not be important except in their cumulative effect on the weight". There is no real difference in kind here; both methods assert that different factors are not equally important in establishing contrast. That is, while the two methods differ in the details of how to evaluate the degree of difference between two constructions, the underlying principles are exactly the same for each method.

Secondly, the problem of what is meant by contrast and variation at "above-the-phoneme" levels still remains. For example, native

speakers would undoubtedly say that "John hit Mary" and "John hit Mary in the garden yesterday" are "different" (that is, they react to these as two "emes"), yet Bee's method would make them variants of one syntagmeme. In fact, there are really two problems here: (1) what is meant by "contrast" and "variation" at this level, and (2) what meaning can we give to "etic" and "emic" at this level? Bee gives no evidence that the latter distinction is involved here.

Now we shall examine Fries's method. Fries specifically addresses himself to the problem of the meaning of contrast and variation at "above-the-phoneme" levels, and he does succeed in defining these concepts in a way that can be extended from the phoneme level to all higher levels, and in the grammatical hierarchy, in a hierarchic model. In fact, his definitions are a restatement of Hallidayian systemic grammar in respect to the notion of "system". Fries's approach closely parallels that put forward by Pike (1962) and Huddleston (1971), that is, comparing constructions with respect to how they may differ along various dimensions. However, instead of the term "matrix", Fries uses "system" or "field". Fries makes an interesting claim (c.f. Bee, Longacre, Pike and others), namely, that the dimensions that are relevant for establishing contrast are largely "functions" (from his article it is clear that he also includes such categories as transitivity, mood, theme, etc.). He is claiming that "class" rarely is involved, and that "distribution" is never involved. Actually, his definition of contrast makes the exclusion of distribution a logical necessity.

He defines "field" as "...a set of language units which differ from each other along a certain finite set of parameters. In the grammatical hierarchy, the units are syntagmemes and the parameters [dimensions] of each field are expressible in terms of grammatical functions" (p. 25). This definition, as applied to phonology, is as follows:

/p/ and /b/ can be said to be in contrast, not because of their differing effects when inserted in a frame /__in/ (c.f. Huddleston, 1971, p. 40), but because they differ with respect to the feature [±voice] - which is one parameter (dimension in the "system" or "field" of bilabial stops in word initial position. What then of the concept of "variation"? For the bilabial stops, while the voicing parameter is diagnostic for contrasting one member in the system with another, the phonetic feature of aspiration (which is another valid parameter, no less than voicing) does not. That is, certain parameters are held to be significant for establishing contrast, while others are not. The problem then boils down to deciding what makes one parameter significant, and another non-significant. Huddleston's answer (1971) was to say that the diagnostic feature is the one which correlated with a change in meaning in a unit at a higher level. However, Huddleston's characterization of contrast as necessarily involving meaning is unnecessarily strong. It is possible to give a weaker definition of contrast, namely, <u>two units can be said to be in contrast if, at a higher level, treating them as contrastive is descriptively useful</u>. (It should be emphasized that native-speaker intuitions

have nothing to do with this principle. Such intuitions have, in theory at least, been incorporated formally within the various construction types being considered.)

Let us take an example to illustrate one of the ways in which setting up two contrastive units may be "descriptively useful". In some Philippine languages, CV and CVC are possible syllable structures; but whereas CV syllables may occur anywhere in a word, CVC syllables may occur only word-finally. Therefore, on the basis of making the simplest possible distribution statements of syllables into the word, it is better to posit two contrastive syllable types, CV and CVC, rather than one CV(C) type. The value of such a definition of contrast lies in the fact that we can meaningfully speak of contrast between units at all levels of the grammatical and phonological hierarchies, without invoking the notion of a constrast in meaning. Of course, once it is established (on the grounds of descriptive usefulness) what are the diagnostic parameters for describing contrast between syntagmemes, the remaining parameters can be handled as variation within syntagmemes.

All this only serves to bring the "etic/emic" problem into sharper focus. There is no way that syntagmemes, so defined, could be "emic" while the constructions from which they were derived were "etic". What is involved here is not a difference between "inside" and "outside" views, but something closer to Chomsky's idea of explanatory adequacy (Chomsky, 1964, p. 63).

It is regrettable that the contrastive unit should be called a syntagmeme. Such a name suggests "emic" status for something which may not mirror native-speaker intuitions. Because of the "descriptive usefulness" requirement, the construction involved may encompass several units at a level of generality pertaining to which a native speaker may have no difinite intuitions at all. We should not characterize grammatical constructions as either etic or emic, but simply think of them as contrastive construction types. It would be less confusing if we could have a name for them that avoided the emic/etic red herring.

A FURTHER NOTE

George Elliot pointed out that Harris tried to define linguistic elements apart from meaning, and succeeded only in failing. I would agree that we do need "meaning" as part of the notion of contrast at the phoneme level. However, I maintain that we need to give "contrast" and "variation" a different meaning within the grammatical hierarchy, along the lines that I have suggested.

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LEXICOSTATISTICAL AND OTHER METHODS OF CLASSIFYING LANGUAGES

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I INTRODUCTION

This paper is a report on a seminar led by Kenneth McElhanon. Section II:PRESENTATION, is a summary of the lecture given by K.A. McElhanon and the reader is referred to his (1970) *Classifying New Guinea Languages* for a detailed examination of the problems here dealt with. Most of McElhanon's examples come from the languages of the Huon Peninsula in the Morobe Province of Papua New Guinea (P.N.G.), where he has worked for a number of years. However, the problems dealt with in this, and the following sections, have relevance for all P.N.G. and other areas as well.

Section III:DISCUSSION and Section IV:OTHER METHODS, are an organized summary of the discussion which followed the lecture. Section III deals with that part of the discussion related directly to the lecture, and Section IV, discussion which ranged more widely. Both of these sections represent my conclusions about the discussion, although I have tried to include all points of view. My method has been to gather together material on the same subject and present it in a single section. This means that successive sentences and even successive clauses may have been spoken by different speakers, and even at different points in the discussion.

Laycock (1970), "Eliciting Basic Vocabulary in New Guinea", briefly mentioned below deserves special mention as a serious attempt to solve some of the problems dealt with in the Seminar. Laycock lists 357 words that have been used in various P.N.G. surveys and assesses the value and also the problems involved in eliciting each word.

II PRESENTATION

General Observation

The more experienced the researcher, the more relationships are found between related languages.

Who would consider the Selepet word for 'blood' hep to be cognate with the Kate word zo?? However, increased knowledge of the languages of the Huon Peninsula reveals a chain of cognates joining the two forms: hep sep sip sic soc zo?.

Lexicostatistics needs to be based on comparative work if it is to give an adequate picture of the language situation. Hymes (1960) has stated this well:

"In principle, glottochronology (lexicostatistics) should be applied only after the comparative method has prepared the way. In practice, a number of scholars have not hesitated to proceed without this safeguard. This introduces a variable factor of judgment, when there is an imperfect fit of sound correspondences... Reliability requires that judgments of cognation be made independently by more then one scholar whenever possible."

The Problem

Many language situations in P.N.G. are similar to those of the Huon Peninsula, where a chain of some dozen languages with average cognate relationships ranging from 34% - 77% between the successive pairs in the language chain places each pair clearly in the same language family, and yet the pair of languages on each extreme of the chain is only 14% cognate, which would normally not be considered in the same family. Such figures seem to make nonsense of using fixed lexicostatistical percentages to subdivide a phylum into smaller groups.

There are some 30 different lexicostatistical classifications that have been carried out throughout Papua New Guinea and Irian Jaya. (For a chronological list of these, see McElhanon, 1971:122.) As these lists are compared, it becomes obvious that no two have been carried out on the same methods and presuppositions. Problems inherent at every turn tend to invalidate the individual studies and certainly make cross comparison between studies almost meaningless.

The following points are a summary of the problems involved.

A. Test Lists

1. Doublets are a problem. Such words as "red" and "blood" are often the same vernacular word. Out of the 100 word list most survey teams find only about 87 that are useful. Different

researches handle the problem in different ways. Some add 13 words to make 100 usable words; others increase the list to as many as 130 words.

2. Basic vocabulary differences. Laycock (1970) has compared all the lists up to 1970 and found a number of differences. Also Wurm and Laycock (1961) have mentioned the problem of "multiple cognates", that is, two or more words that have the same meaning. For example, in Selepet apet and ibi mean 'woman'. Each term is understood throughout the whole language area and speakers could respond with either. The villages to the south, however, show a heavier use of ibi; thus the word for 'woman' does reflect a dialectal distribution. As the researcher deepens his knowledge of the area, such so-called multiple cognates are reduced in number. This reflects on the lexicostatistical percentages.

B. Differing Semantic Domains

1. The problem of eliciting vocabulary lists through another language is acute. In P.N.G. this is often Tok Pisin and few linguists have found this a very successful medium for eliciting material. The problem is that Tok Pisin has a highly generic vocabulary, so it is difficult to get adequate responses. Thus many lists have never been adequately filled out and are of doubtful validity.

2. The meaning of items on the test list differs from person to person. Bromley (1966) has done an excellent lexicostatistical survey in Irian Jaya and has given very specific definitions of the terms he used in his test list. McElhanon has compared Bromley's definition with those used in his own test, showing that many of the terms used are entirely different. For example:

Term	Bromley	McElhanon
neck	'throat'	'nape of neck'
dry	'dried up vegetation'	'dry' as opposed to.'wet'
seed	'what is planted, whether seed, cutting or root'	'seed', 'cutting' and 'root' are all different terms.

C. The Determination of Cognates

1. It is often difficult to ascertain with certainty whether two forms are cognate or not. Only as we use the comparative method and determine what sound correspondences are important within a family will we be able to recognise all the cognates.
2. Bee (1965) has mentioned the problem of morphophonemics in languages of the Eastern Highlands Province, where it is necessary to sort out the morphophonemics before attempting a cognate count.
3. Often a response includes many sounds, with only a few of these relevant to the meaning being elicited. It is impossible to sort these out unless the investigator knows something of the language.

D. Calculating Percentages

Various methods are used. Some investigators just mark an item cognate or non-cognate; other investigators calibrate degrees of probable cognateness, assigning 0-4 points; others have alternate methods. Obviously different methods have produced different results.

E. Levels

Another complication is that different researchers have used different terminology in their classifications of the levels between family and dialect. The following gives an idea of the range of variation.

Deibler & Trefry (1963)	Bromley (1966)	Allen & Hurd (1965)
family	family	family
group	sub-family	language
sub-group	language	sub-language
division	cluster	dialect
sub-division	hesion	
language	dialect	
dialect		

Conclusion

Thus if we add up all these possible variations, it is no wonder that every investigator has come up with different answers. It is no surprise that independent studies on the same languages radically differ in their results, as the following parallel lists illustrate.

Languages compared	Percentage cognate	
	Wurm (1961)	Deibler & Trefry (1963)
Chimbu - Dom	74	41
Chimbu - Sinasina	69	45
Chimbu - Waghi	55	33

Many P.N.G. studies have taken on the atmosphere of being "true" and highly specific figures like 17.3% have been accepted as "accurate" boundaries in dividing language families. But our present methods do not allow us to make such categorical statements.

III DISCUSSION

A. Lexical Borrowing

A listing of a dialect chain, such as that found in the Huon Peninsula, gives us more of an idea of trade routes, than an indication of close genetic relationship. It is significant that the lowest cognate counts in the Huon Peninsula dialect chains are across mountain passes which make communication difficult. Thus a high cognate count may not indicate a "recent" separation between two languages, but rather that contacts between the two groups have been frequent and that there is a strong relationship between them. Some neighbouring languages in P.N.G. show a high degree of lexical equivalence and yet their grammars are highly divergent. If we were to take away all borrowings in a situation like the Huon Peninsula, then we may well arrive at a cognate figure of around 14% even for neighbouring

languages. Thus the researcher would do well to find out what sort of trading and other contact history exists between the various languages under study. He may well find that the borrowed terms in his lists are greater than those which come from the ancestors. Austronesian loan words have been found even in the Highlands of P.N.G.

B. Eliciting Methods

In preparation for a dialect survey the investigator can go through his test list in a known vernacular language from the family to be tested. In this way he will find out the type of problem he is likely to face and can adjust the test list to avoid the problems that come to light. This points out the importance of the investigating linguist being familiar with the local language. However, most of the P.N.G. lists filled out in the early sixties were in language areas new to the investigator.

Use of a vernacular lingua franca other than Tok Pisin greatly helps in eliciting data due to the more precise vocabulary and similarity of semantic domains to the related language.

C. Levels of Application

The usefulness of lexicostatistics depends on what our aim is. If we are looking for a precision instrument to give us genetic relationships between languages, we cannot use lexicostatistics without doing reconstruction and using very rigorous methods. If however,

our aim is an overall impression of relationships, then lexicostatistics is a useful tool.

The words hep and zo? represent a historical relationship, but tell us nothing of the practical problems involved in Selepet and Kate being able to communicate with each other. These words are not obviously cognate to anyone except those who have applied the historical method.

Any of the existing writeups of dialect survey within P.N.G. should enable the researcher to get an overall view of the families in a certain area, certainly an accurate enough picture to prevent two linguists new to an area from undertaking research in the same language family unless they chose to do so.

Other researchers wish to know which is the central dialect of a language in order to do work on this dialect. Again the tool of lexicostatistics should give adequate answers. However, choosing a dialect for study is more of a sociological problem than a linguistic one. If we are interested in producing literacy materials, then we will need to find a dialect that is acceptable to the other dialects; this is not necessarily the central dialect. Once a person knows a language well he should have no trouble conducting a thorough dialect survey within the language along lines similar to Franklin's (1968) study of the dialects of Kewa.

D. Reliability

Studies in other parts of the world have given a reasonably optimistic view of the ability of lexicostatistics to give an overall view of a language family. Thomas and Headley (1970), both Mon-Khmer specialists, worked independently on lexicostatistical data of the same Mon-Khmer languages and produced similar results, mostly within a 5% tolerance.

E. Averaging Figures

Any one cognate figure is suspect, but if we find a group of figures which are all within a certain range, we can have a measure of confidence.

It is wise to start our comparison with languages which show a high degree of relationship and put these in a group and then compare this group with other groupings showing similar high relationships. This enables us to cross check our results. Differences of 5% or even more should be ignored; many arguments have arisen over such minor details.

IV OTHER METHODS

A. Comparative Method

Lexicostatistics and the comparative method are not measuring the same thing. In lexicostatistics we are measuring meaning shifts, but in the comparative method we are measuring sound shifts. The results

of both tests are to be put side by side revealing two facets of the linguistic history of a given language. Most often the results of both tests are parallel, but we have many examples of a language belonging to one area lexically and to another phonologically.

There is a real need for more studies similar to Bee (1965), Healey (1964), and Wurm (1951) which are based on reconstructions over a broad area.

B. Semantic Testing

It was felt that something of the methodology of Huttar (1975) of comparing the semantic domains of words may be applicable to Papua New Guinea. Huttar has compared Surinam Creole with such diverse languages as those from Europe, Africa, South America and elsewhere. Applications of the method to closely related languages would be more difficult, but should be attempted.

C. Ask-the-Informant Technique

This method involves asking village people which villages speak their language, and which do not. There are many problems involved in this method, but a cross section of people's opinions is usually useful information to place alongside other data when assessing the situation. In some languages the people can give an objective appraisal of who speak their language and who do not. However, some groups have a very narrow view of language and reject others within their own language because they use "wrong" words.

D. Mutual Intelligibility Testing

Casad (1973) outlines a method of intelligibility testing developed in Mexico. The method tests a listerner's understanding of each of the dialects within a given area. He listens to a short text in a given dialect and then answers ten questions, and his answers are graded 0-10.

Some feel that intelligibility testing is invalid because of the genealogical history of the person being tested and that we need to become involved in his history:

1. Where his mother came from
2. Which men's house he was brought up in
3. What trading relations his father had
4. Where he went to school
5. Where he has been to work

A person may have had contact with another language through these and numerous other channels. However, the intelligibility test seeks to measure actual intelligibility and is not concerned as to the degree of contact a person may have had with other dialects. The real question is whether the random sample of people tested is really typical of a given area. (Another problem with the method seems to be the great amount of time required to set it up and carry it out.)

The older, simpler methods of Voegelin and Harris (1951), Hickerson, Turner and Hickerson (1952), and Pierce (1952) may appeal to some. Firchow (1967) has used an adaptation of this method for

surveying the dialects of Rotokas. His method tested one-way understanding. It assumes that the linguists know the dialect in which materials are to be produced, but wish to know how they will be understood in other dialects.

E. Acceptability Testing

Acceptance of literature in another dialect or language is more a sociological problem than a linguistic one. If we are interested in producing literacy materials, then we must make sure that the other dialects can not only understand the material, but that they will accept it. There are examples of people using materials in a different language, but there are also examples of people not willing to use materials in a very close, but despised, dialect.

We need to devise a set of questions which will enable us to assess the situation. These questions will differ from group to group for they must be based on the culture and situation of the people involved. A typical list might include such questions as:

1. Who are the villages friendly with you?
2. Who are your rival groups?
3. Who works sorcery on you?
4. With whom would you be able to stay in the same room in the hospital?
5. From whom could you safely accept food?
6. Which groups are trying to take advantage of you?

7. In a council, who would be likely to take your side?

8. Would a literacy teacher from that village be able to teach in your area?

Some people are even able to accurately predict their own behaviour and answer more direct questions: Do those people speak well? Would you use their material?

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LINGUISTICS AND THEOLOGY

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The following rather informal remarks are intended to stimulate thought on the relationships between our study of language and our knowledge of God. I welcome both positive and negative commentary on them.

PREMISE 1. The communicative side of man's nature is part of the image of God in him.

That God is by nature a communicator is perhaps implied in His nature being one of love. His acts of creation, and His sustaining of the creation, are described in terms of speech: Genesis 1, Colossians 1:15-17, Hebrews 1:1-4. Nature is described as a communication of God to man (Psalm 19:1-5). The incarnation is described as God's communication to man (by translation) (John 1:1-18; 14:9).

Therefore, in studying the way man communicates, we are studying one aspect of the image of God in man. The same would be true of our studying man's creativity, for example, or his moral sense.

PREMISE 2. Since the message of the Biblical record is normative for Christian doctrine and practice, a correct understanding of that message is crucial for the committed Christian.

As in other areas, here also God apparently prefers to combine His own working with our co-operation (e.g. Ephesians 2:8-10 and Philippians 2:12-13). Therefore, while we depend on the illumination by God's Spirit for our understanding of the Biblical message, God also expects us to use whatever other tools will help us to understand the message. Since the message comes to us through the medium of human language, the study of language (linguistics) can be considered at least "first among equals" of a group of disciplines including archaeology, history, and anthropology.

A reasoned philosophy of language, and an understanding of how language, speech, and communication work, are essential to a complete understanding of areas such as the following: literary criticism (e.g. as applied to Biblical texts); including questions of authorship; textual criticism; literal and figurative uses of language and the nature of signs, symbols, and sacraments; scientific vs. poetic vs. other uses of language; effective communication of the Christian message in various times and places; logic, whether used in theology or elsewhere; prayer; magic; translation; the "religious language" question (whether it is possible to talk meaningfully about God); inspiration; as well as a number of other areas not of as direct concern to our understanding the Biblical message.

PREMISE 3. At least some of the patterning found in phenomena studied is inherent in the phenomena, not merely imposed by the investigator. The ultimate source of this patterning is God.

Therefore all such patterning constitutes to some extent a revelation of God's nature. Therefore the study of patterning in language reveals something of God's nature.

A bolder hypothesis, on which feedback from specialists in a variety of fields should prove interesting, is this:

Because communication is a more essential aspect of God's nature than are, for example, processes of rock formation or of plant propagation, the study of language tells us more about God's nature than does the study of, for example, rocks or plants.

ABORIGINAL WORLD VIEW AND TENSE, MOOD AND ASPECT IN WIK-MUNKAN

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When one meets an Australian Aboriginal the first thing to be established is one's relationship. It is possible to find this out by "skin" names over large areas of Australia, or by finding a person known to both and the relationship of each to that one and then working out your own relationship. Until this is done one remains a stranger - the only other possibility. One is either a stranger - literally a person from a long way off, or a relative. The fastest way to gain rapport is to discuss your family at length and establish "who's who".

It soon becomes evident that "who you are" is more important than "what you do". That is, the people are "being" oriented in contrast to us who are "doing" or "goal" oriented. In our allocations our whole motivation for being there often tends to make us even more "goal" oriented than otherwise, thus making acceptance and communication even more difficult. Margaret Bain has written an excellent article (unpublished) on "Being rather than Doing".

In an aboriginal community one quickly realises that one's family and kinship ties are the most important aspect of aboriginal life. How he performs is often secondary, in fact at times seems totally

irrelevant. In one family a small boy, who was fond of riding his bike and not the least interested in learning to read, was described by his mother as her "bike-riding son". It was almost as if she were saying, "He is my son, don't you understand?" An illegitimate pregnancy initially causes a fight but the children are readily accepted into the family; and when someone returns home from jail, even after a serious offence, this can be a time of family rejoicing and celebration.

In contrast, another son may meet tremendous opposition for wanting to do something different. In some families this is especially true if what he does - or wants to do - gives him too much European contact.

Before the days of European contact an "ideal" aboriginal man was one who accepted without question what he was told in relation to behaviour and ceremonial life. To question what he was told or to enquire into areas of ceremony which he was not yet entitled to know was a serious offence and severe punishment could result. Today, children who ask too many questions about new and interesting things around them are considered rude and a cause of shame to their family.

The fact that questioning is not acceptable is reflected linguistically. It is very difficult to ask "why". The same construction means "from what time", "from what place" and "from what reason".

Such a question will frequently be misunderstood, and the answer received will often be a repetition of the facts rather than a reason for them. It is significant to note that children visiting the house will never ask "why", but constantly ask other questions. In other instances, because of the wide possibility of meanings, it is sometimes hard to get a clear distinction.

Europeans throughout Australia have often been frustrated because the only reason a person will give for a certain action or custom is "that is the way it has always been done". Custom being the reason for most behaviour means that it is very difficult for an aboriginal to handle a new situation. He simply does not have the framework to handle such issues as the work ethic, alcohol and its implications, the reasons for education, government policy, land rights and business deals. The only valid argument he has for land rights, for example, is that the land has always been his. The importance of this argument is frequently not understood by those dealing with him.

An Aboriginal language, such as Wik-Munkan, has the framework for handling reason constructions as can be seen in the story of "Why we chop down mango trees" (Sayers, 1976 (b): 181). The important thing to understand about this story is that the chopping down is done because the workmen were told to by the European boss. The aboriginal story teller understood the reason of danger, but the people themselves would not have chopped down the trees for that reason.

Other values are different. A child might be "persuaded" to do something - for his parents' convenience - by fear. A relative dressed up as a ghost quickly sends a child in the required direction. The same parent would be unwilling to remove a valued item from the child because as a child he should be allowed to have anything he wants. At other times ridicule is used to get the required behaviour. Praise, on the other hand - especially in the hearing of others, might cause the child to withdraw and no longer try.

Aboriginals' attitude to time is often most frustrating to Europeans. He does not understand our system and we do not understand his. The purpose of this paper is to look at the aboriginal view of time and to see how this is expressed in the structure of his language.

The traditional Indo-European terminology of tense, mood and aspect is a suitable vehicle for describing languages which view time as a linear string as described by Elkin (1970:701) in his article, "The Aborigines of Australia: 'One in Thought, Word and Deed'",

"With us, time is a linear process, a succession of moments from an infinite past extending on to an infinite future, a succession which is divided into a variety of even periods, and these are enumerated. Our present refers to one of these periods, years, months, days and hours, in a definite position in the linear process of time. It will not return, though its influence, especially through its written records, will influence other stages in the process."

Elkin goes on to describe the aboriginal view of time as cyclic:

"To the Aborigines, however, time is not a linear process. Sunrise, midday, sunset and darkness, day and night, cycle even as the sun and moon do... in Aboriginal thought it is ever the same sun and moon, the same transformed woman and man respectively. Likewise, the seasons cycle, each with its typical range of climatic conditions and normally available foods."

In trying to understand the aboriginal view of time and to write a grammar that reflects the thinking of these people, I have been forced to re-examine the data in its traditional terminology - so well described, for example, by Godfrey (1970) and Kilham (1974) - for Wik-Munkan of Cape York. This closer look at the tense, mood and aspect affixes and the verbal auxiliaries of Wik-Munkan has revealed some interesting things - such as tenseless moods and moodless tenses - and the startling fact that these tense/mood/aspect affixes are mutually exclusive, each following the verb stem. Another puzzling feature which this close look has clarified was the apparent opposite meaning of verbal auxiliaries in different positions in the clause structure (see examples 1 and 3). A previous suggested analysis of this phenomenon was that these were homophonous forms with different pitch or tone which would have added lexical contrasts to grammatical pitch contrasts and thus help establish a tone language system. This analysis was rejected as it appeared "an easy way out" in a sense, but mainly because it failed to reflect the thinking of the people.

To further quote Elkin,

"ABORIGINAL TIME: A CYCLE

The Aborigines do recognize a past of varying degrees, a present and a future, but as nomadic, food-gatherers and hunters, their attention and activities are so directed day by day towards satisfying the basic needs of existence, and in bad times, of survival, that the past and future are but aspects of the present. They are respectively the immediate shading from the one and into the other."

This poses problems for the linguist. Elkin raises it when he discusses the Dreaming (1970:700) in its present-past manifestation - that is the past as an ever present "ground" of life. Elkin also quotes from Nils M. Holmer (1966:74) who writes, "Since the notion of time in our sense does not properly exist among the Aborigines, it is of course inadequate to speak of tense." Elkin goes on to say that Holmer "decides however, not to invent new terms for the Australian languages, but, for practical reasons, to use the conventional terms. In using them we must remember that their connotation differs from what it is in English grammar. The structure of the aboriginal language, its inflections and conjugations, must be understood within the context of a people's economic and social life. It is an aspect of total adaptation. Thus for the food-gatherer, distance and time are basically aspects of one activity; distance is the radius or range from the water or camp, over which he may hunt and gather without

perishing from hunger or thirst and without trespassing in another's range. Time is but a concomitant of this activity and is not mandatory. To arrive on a certain day or at a certain hour is not significant; eventually to arrive is what matters."

In this paper, then, I present an analysis of Wik-Munkan verbal affixes which reflects the structure of Wik-Munkan language and thought, rather than traditional Indo-European grammatical categories.

TENSE AND MOOD SUFFIXES

The tense/mood suffixes which co-occur with each person/number have been described by Kilham (1974:52-56) as Present, Past, Future and Subjunctive; while I have preferred the terms Past Tense (non-future), Future Tense, Subjunctive Mood, and Customary (includes present continous) Aspect. To this set I have also added Continous/ Repetitive Aspect. My terminology adds Aspect to Kilham's Tense and Mood inventory.

On re-examining these categories it was clear from their mutually exclusive distribution that they were all really just one system, so I started to look for terminology that would better reflect that system. I decided that an aspect system would adequately handle it. See diagram 1. for the comparison with my previous terms.

TENSE		MOOD	ASPECT	
Past (Non-Fut.)	Fut.	Subjunctive	Customary (Pres.Continous)	Continous/ Repetitive

A S P E C T				
Accomplished	Projected	Hypothetical	Customary	Continous/ Repetitive

Diagram 1.

These present categories cover what could be called the basic aspect System of Wik-Munkan. These categories can be expanded by co-occurrence with the verbal auxiliaries kan and ngul and/or by contrastive intonation patterns. The scope of this paper does not allow for discussion of the effect of contrastive intonation patterns but a description can be found in Sayers (1976:a) and in less detail in Sayers (1976:b). The other moods and aspects are also handled by Kilham (1974:62) and Godfrey (1967-type-script) and include desiderative, intentional, predictive and permissive.

kan and ngul

A major expansion of categories occurs with the use of kan, ngul and the compound kan-ngul.

Finding simple labels for these auxiliaries has caused considerable difficulty. My first label for kan was punctiliar and this is a

reasonable description of its function. Ngul was not so easy. My first understanding of its usage was as future and Kilham (1974:63) likewise says 'later on' is the primary meaning. I now no longer agree with this.

Kan and ngul contrast in such sentences as:

(1) Ngay kan iiyāng. 'I'm going (right) now.'
I go-I-proj

(2) Ngay ngul iiyāng. 'I'm going later.'
I go-I-proj

Early in analysis this contrast caused confusion as (1) was hard to distinguish from (3) - both phonetically and in respect to meaning. (¯ over vowel indicates stressed vowel and ˘ over vowel indicates lack of stress.)

(3) Ngay kan iiyăng. 'I've just been.'
I go-I-acc

However, when ngul appeared with a past connotation it was really confusing - as in (4).

(4) ... ngay iiyăng ngul. '... and then I went.'
I went-I-acc

These and other usages are charted in diagram 2. Note that this diagram and further discussion only relates to Accomplished and Projected Aspects. For comparison, the traditional tenses Past, Present (but only a single action) and Future, with a summary of the Wik-Munkan equivalents for each has been included.

Diagram 2 highlights the aboriginal cyclic view of time as stated by Elkin while showing us the futility of trying to describe the beautiful Wik-Munkan system in Indo-European terms.

There are further components of meaning for each of the six combinations of auxiliary and aspect and these are summarized in Diagram 3.

As can be seen from Diagram 2 and the following examples (labelled according to Diagram 3) the auxiliaries kan and ngul are not readily understood in the past-future dichotomy to which we are accustomed. Rather, they are better understood as a further dimension of the aspect with which they occur.

(i) (3) Ngay kan iiyăng. 'I've just been.'
I go-I-acc

(ii) (1) Ngay kan iiyāng. 'I'm going (right) now.'
I go-I-proj

TRADITIONAL TERMS	PAST TENSE		PRESENT (Single Action) TENSE		FUTURE TENSE	
Wik-Munkan Structure	Accomplished Post verb unstressed ngul		Accom-plished kan	Projected kan	Projected Pre verb stressed ngul	
PRESENT TERMS	ACCOMPLISHED ASPECT			PROJECTED ASPECT		
Cyclic linkange of terms in relation to 'now'	ngul	kan-ngul	kan	'Now' or Time in Focus kan	kan-ngul	ngul
Stress	post verb and stressed	stressed	stressed	stressed - except in imperative	stressed	pre verb and stressed
Time	past-remote to close	specific past	immediate past	immediate future	specific future	future-close to remote
Range of Meaning	'and then'	'already' 'at last' 'began to'	'now' not so much a specific point in time but a specific incident	'now'	'about to'	'later'

Diagram 2.

ASPECT	ACCOMPLISHED			PROJECTED		
Auxiliary/ meaning component	ngul(v)	kan-ngul(iii)	kan(i)	kan(ii)	kan-ngul(iv)	ngul(vi)
time	close to remote	close to remote	immediate	immediate	close	close to remote
indefinite/ specific	indefinite	specific	specific	specific	specific	indefinite
factual/ doubtful	factual	factual	factual	factual	factual (intentional)	includes element of doubt
scope of influence	final in succession	final in limited sequence - which includes response to a question or statement	one clause	one clause	may be initial, but usually occurs final in a limited sequence	initial in succession

Diagram 3.

Kan also occurs in the imperative:

(5) Kan uka! 'Get down (at once)!'
get-down-imp

(iii) (6) Ngay wenkangan, wenkangan, wenkangan,
I looked-for-I-it looked-for-I-it looked-for-I-it

a' kan-ngul uwang.
and then at-last found-I-acc
'I looked, looked (or continued to look) and at last I found it.'

(7) Nint ngul thee'ān nungant ey?
You give-you-proj him-to quest
'Will you give it to him?'

Kan-ngul thee'ăngānt.
already gave-I-acc-him-to
'I've already given it to him.'

(8) Nil kan-ngul thaw. "He has begun to speak.'
he began spoke-he

(iv) (9) Ngay inam wunang yippak puth kan-ngul iiyāng.
I here-emph stay-I-acc still but about-to go-I-proj
'I'm still here, but I'm just about to go.'

(v) (10) Ngay wenkangan, wenkangan, wenkangan,
I looked-for-I-it looked-for-I-it looked-for-I-it

a' uwang ngul.
and then found-I-acc then
'I looked and looked and then I found it.'

(vi) (11) Ngay yiip ngul iiyāng, a' aak thathāng,
I south go-I-proj and then place see-I-proj

a' wik inangan waa'āng thant.
and then word these tell-about-I-proj to-them
'Later, I'm going south to see that place and to explain these words (this paper).'

Kan and ngul both occur with a wider range of meaning still. Kan occurs unaffixed when the time in focus is 'now'. This would appear to be the primary usage of the word. When it occurs in relation to a past or future event it is then found in a dependent or subordinate time clause as is marked by the definite suffix -'an. In these dependent constructions the temporal setting is established by time words preceding the clause which is in accomplished aspect. The internal construction of the clause is identical for both past and future events. See examples (12) and (13). These usages could perhaps be called Future Accomplished and Past Accomplished (Future Perfect and Past Perfect).

(12) Ngul-ngul'aniya, than kan'an aak thathin,
later-def-topic they place see-they-acc

than palam ngul wampāyn.
they return-here come-they-proj
'Later on, when they have seen the place they will come back here.'

(13) Keenkanam'aniya, than kan'an aak thathin
a long time ago-def-topic they place saw-they-acc

than palam wampin.
they return-here came-they-acc
'A long time ago, after they had seen the place they came back here.'

Kan can also occur in an introductory time clause of a new sentence or paragraph. In these cases it acts as a summary linkage, repeating information from the previous paragraph before the new information to follow, e.g.

(14) ...than may mungkin ngul.
...they food ate-they-acc then

Yaa, than may kan'an mungkin, than...
introducer they food ate-they-acc, they...

'...and then they ate their food. Having eaten the food they...'

Likewise ngul has wider usage, both as an introductory time word used in a clause, meaning something like 'so then', 'and then', 'so well'. It also occurs as the time setting for a new clause or paragraph. It is usually then affixed as in (12) above. Its meaning would be translated 'after that' or 'later on'.

BASIC MEANING OF AUXILIARIES

When considering the extended usage as well as the occurrence within clauses, a different type of basic meaning seems to emerge.

Ngul is always involved with some kind of succession - which may or may not be overtly stated. It may even be a fragmentary sentence ngula 'later on' which implies something is not going to be done now, but later - so semantically involves succession. The temporal aspect seems to be secondary.

Similarly kan could be described as being unitary while its specific time sense seems to be secondary. The influence of kan only extends over the clause in which it occurs. Like ngul, kan occurs as a fragmentary sentence with the meaning 'It's done', 'That's enough', which implies a once only event.

In other words these auxiliaries add a further dimension to the aspect system - that of a unitary-successive opposition. Such balanced or binary oppositions are a constantly recurring feature of Wik-Munkan grammar, indeed of the world view of the Wik-Munkan and other aboriginal people.

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ARTICULATORY PHONETIC PARAMETERS

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A. Airstream Mechanism

1. pulmonic (lung air)
2. glottalic (pharynx air)
3. velaric (mouth air)

B. Airstream Direction

1. egressive
2. ingressive

C. Glottis State

1. closed
2. voiced
3. voiceless
4. creaky (tight, laryngealized, sharp)
5. breathy (murmured, soft)
6. whispered
7. falsette

D. Throat State

1. tight (constricted)
2. open (expanded)

3. normal
4. backed tongue root
5. fronted tongue root
6. faucalized

E. Velum Position

1. closed (raised, oral)
2. open (lowered, nasal)
3. half-open

F. Active Articulators

1. lower lip (labio-)
2. subapical (sublingual)
3. tongue tip (apico-)
4. tongue blade (lamino-)
5. tongue center (fronto-)
6. tongue back (dorso-)
7. tongue root

G. Points of Articulation (passive)

1. upper lip (labial)
2. upper teeth (dental)
3. alveolum (teeth-ridge)
4. alveopalate (prepalate, dome)
5. palate

6. velum
7. uvula (velic)
8. pharynx wall

H. Mouth Stricture Type

1. nonfrictional (open approximant, semivowel, resonant)
2. fricative (spirant)
3. stop
4. percussive (trill/flap/tap)
5. high vocoid
6. mid vocoid
7. low vocoid

I. Articulator Shape

1. flat
2. narrow grooved
3. wide grooved
4. rounded grooved
5. retroflexed tip
6. lateral (unilateral/bilateral)

J. Complexity

1. simple
2. complex onset (voicing, voicelessness, nasal, glottal)
3. complex nucleus (palatilized, labialized (rounded), unrounded,

velarized, pharyngealized (backed tongue root), glottalized (simultaneous glottal stop), double stop)

4. complex release (aspirated, affricated, nasal, lateral)

K. Prosodies

1. length
2. pitch
3. intensity (loudness)

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PROSODIES IN SOME ABORIGINAL LANGUAGES

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Aboriginal languages of Australia for the most part have been considered to have little of significance in the way of prosodies of pitch, intensity, timing and overall intonation patterns (Marsh 1970, Hudson 1970). Word stress has been considered ~~non~~-contrastive, primary stress generally occurring on the first syllable and secondary stress rather more indefinitely on other syllables.

One of the reasons for the minimal amount of work in this area has been that in many languages stress is hard to perceive. Even work on Peck's suprasegmental analyzer gave inconclusive evidence for identifying stress placement in Anandilyawgwa of Groote Eylandt (J. Stokes, personal communication 1973). I assume that the unsatisfying results were because only pitch and intensity were being examined, rather than a search being made for other identifying features. Something was obviously important to the aboriginal speakers, and the linguist herself reacted intuitively to this same "something". It was puzzling and frustrating.

I experienced similar frustration in my Wik-Munkan work although the actual problems appeared at first to be very different. In Wik-Munkan pitch changes were easily perceived and obviously relevant.

Various aspects of Wik-Munkan problems and their solutions can be seen in Sayers: 1975, Sayers 1976 (a) and (b). Another paper discussing "The Word, The Foot, The Syllabe and The Phoneme" is still in draft form.

In the paper on syllables (Sayers, forthcoming) there is a brief description of the distribution of syllable types-Independent, Inter-dependent, and Dependent-in the Foot. The Foot patterns of Wik-Munkan are S, SS, SS, SSS, and S (S represents syllable, ´ primary stress, ` secondary stress and ˇ lack of stress).

The complexity that has caused problems in describing the foot in Wik-Munkan is in relation to alternate pronunciations of words such as (a) núŋ·ǎntàmǎntáŋ vs. (b) núŋ···ǎntàmǎntàŋ 'with his/her (mother)'. In (a) each of the three feet is evenly timed, while in (b) the first foot is long, and what had been two feet in (a) now occurs as a level embedded in a second foot which is pronounced at a speed that approximately equels the first foot. Two more contracted forms occur, but these are both three evenly timed feet: (c) núŋǎntàmǎntàŋ or (d) núntàmtàŋ.

Analyzing the second foot in (b) to consist of two embedded feet removes the need to establish an extra level between the foot and the syllable.

In working with Noreen Pym on Iwaidja, it soon became evident that the underlying problems in the analysis were similar although the original problem had been "identifying word stress". In Iwaidja the problem arose because the linguists had been looking for the highest pitch as the identifying feature of word stress. This criterion caused problems because (i) syllables with highest pitch fluctuated in the same word from utterance to utterance—especially when repeated by successive speakers in a dialogue; (ii) some words appeared to be equally stressed—in relation to pitch and intensity; and (iii) the marked difference of syllable length in some circumstances was obviously significant.

The paper "Notes on Rhythmic Patterning in Iwaidja" (Sayers and Pym 1974) was the result of two weeks field work. It does not give analytical solutions, but shows the techniques used to identify the features that are significant in Iwaidja rhythmic patterning. The remainder of this material is extracted from that paper. Following is a brief discussion of the importance of this area of analysis in relation to other Aboriginal languages, and in applying this information, especially in language learning and the teaching of literacy.

1. The original problem was identifying "stress" in Iwaidja.

2. The technique:

   (i) The British S.I.L. language learning technique of tapping

rhythm and humming or saying la-la was followed. (No attempt was made at this stage to include segmental phonemes.)

(ii) An attempt was made to apply Grimes's (1969) procedures. Problems arose as Grimes's categories (1969:40) did not fit Iwaidja. One extra level was needed. (In Wik-Munkan at least one extra level is needed.) (See following comparison of terminology.)

Grimes's Terms		Terms used to describe Iwaidja
Observational Category	Analytical Category	Category not differentiated
Breath Segment	Contour	Phonological Clause/Breath Group
------	------	Phonological Word/Rhythm Group
Rhythmic Segment	Foot	Foot/Rhythmic Segment
Syllabic Segment	Syllable	Syllable

(iii) Pitch, intensity and rhythmic segmentation were observed and recorded separately. Only then was a satisfactory transcription made.

3. Corpus of Data was fifteen 15-30 second discourses on tape loops.

4. Immediate Results: The procedure proved to be rapidly rewarding. It showed (i) the high relevance of timing and rhythmic segmentation and (ii) the relatively low importance of pitch.

It was thrilling to see that once timing and segmentation were mastered it was possible to produce long utterances to the immense satisfaction of language helpers—even though segmental phonemes were not accurately reproduced.

5. Detailed Findings: A large number of features have been recorded, but as yet the system has not been analyzed. The features identified and recorded are listed with examples.

(a) Rhythmic Groups tend to be "balanced"; i.e. there is some kind of metrically organized pattern of rhythmic groups (and/or segments).

(i) Rhythmic groups may occur with the same number of syllables in each rhythmic segment. (In many examples pitch and intensity are constant over more than one syllable—in some examples, it is constant over rhythmic segments.)

(1) nulidjanad gudbiŋgugun 'You two arrived.'
you-two you-arrive-dual-past

(ii) In other balanced rhythmic groups the number of syllables in the rhythmic segments may vary. Then the speed of each foot is adjusted to achieve the even timing. Balanced rhythmic groups may be either 1 fast - 1 fast (2); 2 slow - 2 slow (3); 3 even (4); 1 slow - 1 slow (5); 1 fast (contracted) - 1 slow (6); etc. Examples of more complicated patterning are not shown.

(2) gayiřg buřuli 'It's good now.'
now good

(3) ayunayan nagi 'I see the dogs.'
I-them-see dog

(4) idbaṛan bařa 'They went (intensified).'
they-go-past intensifier

(5) aŋunman naŋudj 'I told it yesterday.'
I told it yesterday

(6) gayiřg mana baniwulařuŋ 'Maybe he'll finish.'
now maybe future-he-finish

(b) Rhythmic Groups can be called Phonological Words (P-words). For the most part P-words are equivalent to Grammatical words (G-words). If not, usually only a limited number of grammatical forms occur with the first prefix (or syllable) of the following G-word, resulting in two P-words which are out of phase with the G-words. These include galu 'not' (7) and mana 'maybe' (8).

(7) gaḷu ṛiwulařuŋ 'He hasn't finished.'
not past-he-finish

(8) gayiřg mana baniwulařuŋ 'Maybe he'll finish.'
now maybe future-he-finish

(c) The same words within the corpus were segmented different ways on different occasions.

(9) baḍuwa 'that's all' could be baḍuwa or baḍuwa, but never *baḍuwa.

(10) wiŋalmu 'big mob' could be wiŋalmu or wiŋalmu, but never *wiŋalmu.

(d) Segment boundaries do not always occur where expected. If a word is incorrectly segmented an Iwaidja speaker will change the length and pitch to highlight the segmentation error.

(11) banawani 'he will stay' will be repeated as bana:wani to emphasixe that the /w/ belongs in the first segment; i.e. it should be pronounced banawani, not *banawani– as expected. (Interesting syllable analysis needs to be handled at a later date.)

(e) There is a range of possibilities for the relationship of pitch changes to rhythmic segmentation. In some examples pitch changes and rhythmic segment (foot) boundaries coincide.

(12) gaṟugaṟug 'afternoon'

(13) nagi 'dog'

In other examples pitch is sustained over rhythmic segment boundaries:

(14) aŋguwanj 'he drank it',

(15) abani 'she stays away'.

In other examples, pitch alters (drops) within the rhythmic segment:

(16) gudbiŋgugun 'you two arrived', djanaṛa 'I'll go.'

(f) In relatively slow speech rhythmic segment (foot) boundaries for the most part occur between the consonants of a cluster:

(17) buŋalbunj 'they cracked them',

(18) yuŋguṟaṛa 'you (pl) go away'.

If there is no consonant cluster, a single C appears to be an interlude consonant in some examples:

(19) ṛayan 'he saw',

(20) yawaṛan 'he went away'.

(g) Tenseness of articulation. A wide range of tenseness of articulation was noted. Preliminary observation is that tenseness marks the beginning of a discourse and laxness the end. Wide range within could be related to paragraph structure.

(h) A few grammatical features were noted.

(i) The last syllable of the last rhythmic segment may rise in sequence constructions and in head-tail linkage, as in (21) and (22). In (22) the pitch of the P-clause is also raised, indicated by ↑.

(21) arimanj / arimanj / biŋgun gunag/anudjinj

he-got-it he-got-it he-arrived home he-showed-it

'He caught it. Having caught it, he came home and showed it.'

(22) ṛayan ambidj / ↑ ṛayan ambidj / arimanj

he-saw snake he-saw snake he-got-it

yawaṛan gunag /

he-went-away home

'He saw the snake. Having seen the snake, he caught it and went home.'

(ii) In appositional constructions the last rhythmic group (P-word) is slower and separated from the rest of the breath

group (P-clause) by a potential or slight pause. This last rhythmic group is the grammatical word in apposition.

(23) gubuřubuř yadnagan / ululi

morning past-we-went Urlurli

'In the morning Urlili and I went.'

6. Other Australian Languages appear to have similar features. I have noted the importance of correct segmentation in Pintupi, Warlpiri, Nyangumarda, Tiwi, and Anandilyawgwa. My hypothesis is that rhythmic segments (feet) are a level to which the native speakers react far more positively than they do to syllables. The borders of such segments appear to be more relevant than the nuclei. Rhythmic segments observed to date in these languages appear to be mostly of two or three syllables, and of the following patterns: ŚS, SŚ, ŚSS, SŚS. Almost all the long words of these languages can be made up from these segments. While these rhythmic segments are stretches of speech unified around a single beat or rhythmic nucleus (Grimes 1969:33), it appears that to many Aborigines the borders are more important than the nucleus. As Grimes also says (1969:34), prosodies that unify a cluster differ from language to language.

7. Implications:

(1) Literacy. Should we be teaching rhythmic segments (feet) as an additional level in the Gudschinsky method—between word and syllable? Should we teach feet instead of syllables?

(2) Language learning and fluency can be speeded up and improved by being aware of correct rhythmic segmentation; even slowed down speech sounds natural if the pauses are in the right places.

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FEATURES OF PHONEMES

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0. The purpose of these notes is

(1) to make explicit the principles underlying some S.I.L. field practice;

(2) to encourage linguistic field workers to make more systematic and explicit use of phonological features in linguistics and literacy; and

(3) to suggest that courses at S.I.L. schools, even at the introductory level, include training that will make such use possible.

1. By PHONOLOGICAL FEATURES I mean the features of the phonemes of a language that one must take into account when describing

(4) how the phonemes contrast with one another;

(5) how the phonemes are distributed relative to each other, to other phonological units (e.g. syllable and foot), and to grammatican units (e.g. morphemes);

(6) the distribution of allophones of phonemes;

(7) the phonemically conditioned shape and distribution of allomorphs of morphemes; and

(8) phonemically conditioned facts about the contrast, variation, and distribution of other units in the language.

Phonolgical features that must be recognized in order to account for contrast among the phonemes of a language are called DISTINCTIVE PHONOLOGICAL FEATURES. Phonological features that must be recognized only for purposes (5) - (8) above are called NON-DISTINCTIVE PHONOLOGICAL FEATURES.

To illustrate:

(9)

	labial	palatal	back
vl. stop	p	t	k
vl. fricative	f	s	h
vd. nasal	m	n	ŋ
vd. semivowel	w	y	

In the above chart of consonant phonemes, the labels on the top and at the left refer to phonological features (PFs for short). Two of the PFs, voiceless (vl.) and voiced (vd.), are not needed to distinguish any one phoneme from any other phoneme, for they are always predictable: stops and fricatives are all voiceless, nasals and semi-vowels are all voiced. To include them as <u>phonological</u> (as opposed to <u>phonetic</u>) features is to say that they are needed in order to state some other fact about the language as generally as possible.

For example, suppose that final unstressed vowels in the language are voiceless after /p t k f s h/, and otherwise all vowels are voiced. We could state the segmental part of the environment of voiceless allophones of vowels in several ways. Here are three of them:

(10) a list of six phonemes: /p t k f s h/;

(11) a list of two phoneme classes: stops and fricatives;

(12) a "list" of one phoneme class: voiceless segments.

Clearly (12) is the simplest description, and (10) the least simple. (12) claims that the same phonological process is going on in all six cases. (10) is merely stating six environments in which vowels have voiceless allophones, with no claim about whether what happens after /p/ has anything to do with what happens after /t/, etc. And (11) occupies middle ground between the two.

Note also the placement of /w/ and of /h/ in the chart. To put /w/ in the "labial" column rather than the "back" column is to say that /w/ is more like /p f m/ than like /k h ŋ/ in its distribution, or in the distribution of its allophones, or in how it conditions the distribution of other units. Likewise to put /h/ in the "fricative" row rather than the "semi-vowel" row is to say that /h/ is more like /f s/ in these respects than like /w y/.

Such decisions about where to group /w/ and /h/ could be based on data like (13) and (14) for /w/, and (15) and (16) for /h/:

(13) /w/ can be preceded by /t/ or /k/, but not by /p/; /y/ can be preceded by /p/ or /k/, but not by /t/; so in general, semi-vowels can be preceded by heterorganic stops, but not by homorganic stops;

(14) /i/ has the allophone [ü] before /p f m w/ and [i] elsewhere, including before /k h ŋ/;

(15) stops can be followed by /w/ or /y/, but not by /h/;

(16) stems can end in only /f s h/ or a vowel.

2. All the above examples are of a sort that should be familiar to S.I.L. field workers. The same or similar decisions have been made for the same or similar reasons in making phoneme charts for scores of languages. But I have gone over this ground again for two reasons:

(17) Sometimes such charts are found that combine both phonological and phonetic features together. For example, separate "bilabial" and "labiodental" columns are set up for /p/ and /f/, even though it is never necessary to refer to this difference except when describing the phonetics—the pronunciation—of the language. As a result, one somtimes has to keep referring to both "bilabials" and "labiodentals" in the rest of his description, instead of just simply "labials". Not only does the description become more complicated—it also fails to say that the same thing is going on in the case of /f/ as of /p/.

(18) Sometimes non-distinctive PFs are left unmentioned (whether on a chart or in a written description of the contrasts among the phonemes), but then referred to when describing the distribution of allophones or of allomorphs, or syllable structure. Such a practice leaves it to the reader to make the right guesses about the correspondence between terms like "voiced" when used in the description of a phonological environment or unit and the same term when used phonetically.

3. By now—or earlier—some readers have probably put two and two together and come up with the phrase "distinctive features", or

possibly even "generative phonology" (GP). Before you react by setting this article aside, let me make some distinctions about what I am and am not saying.

If you explicitly recognize PFs in your description, you do not thereby become a "generative phonologist" and cease to be whatever sort of phonologist you were before. Rather, it means that you start defining exactly—for yourself and for your readers (be they your branch orthography committee or the linguistic world in general)—notions that you're already using. It also means you're asking yourself a few more questions about the relationships among phonemes, and that procedure is likely to lead to the discovery of distributional or other facts about emes or allos in the language.

But doing all that I've just mentioned does not constitute becoming a generative phonologist. The explicit use of PFs is not unique to GP, which involves many other concepts as well.

And don't let the label "generative" mislead you (e.g. put you off). You can appreciate and use the GP theory without thereby committing yourself to either "transformational-generative" grammar or "generative" semantics (which are, after all, often considered mutually exclusive, though both called "generative").

Further, using PFs does not necessitate "going binary". While it is a part of the GP framework to express all contrasts between units in terms of only two choices (+ or -) for each PF, there are other ways to operate with features. Ladefoged, for example, uses PFs with more than two values, and so did I in chart (9) above (e.g. "labial",

"palatal", and "back" are three values of the PF (or dimension) "point of articulation"). And Lamb uses PFs in yet another way.

Nor does using PFs mean that you have to deal with acoustic features (although in some cases it may be convenient to do so). Historically, distinctive feature theory did go through a stage in the 50's and early 60's when it was generally thought that acoustically defined features were more useful than articulatorily defined ones. But that is not the case now, was not the case in the 20's, and never had any logically necessary connection with the use of features.

Having said all that (in the preceding five paragraphs), I hasten to add that I see a lot of value for S.I.L. work in most aspects of the GP framework, including even, to some extent, its binarism. But my purpose here is not to catalogue the possible benefits of a closer acquaintance with all aspects of GP. For one thing, many details of the theory are a matter of considerable controversy at the moment.

4. But if you've read this far, you still have a right to ask, "What's in it for me? How will attention to PFs, distinctive or otherwise, help me do a better job on the field?" Let me suggest four likely benefits:

(19) As already mentioned in 3. above, attempting a systematic and explicit analysis of the phonology of a language in terms of PFs means asking yourself some things about the language you probably would not have asked otherwise. (The same thing is true of any theoretical viewpoint in any field of study; the theory (or "model",

or "grid") through which you look at the data requires you to answer certain questions. One sort of difference among theories is how relevant their questions are.) Part of what I'm saying in this paper is that the questions that working with features makes you answer are helpful ones. The answers don't just complete the requirements of a theory; they tell you things you want to know about the language. Sometimes you discover things that you hadn't noticed before. Sometimes you find that you can relate as one process various phonological facts you had treated separately before. (And sometimes, let's be honest, you may not discover anything new. But I don't expect that to happen very often.)

(20) One obvious area of practical application of new insights into phonological structure is in orthography and spelling. Recognition of relations among phonemes and among morphemes at the feature level can help lead you to general orthographic decisions, and decisions about the spelling of specific words, that are more in line with native intuitions. (Spelling problems involving morphophonemic alternation constitute an area where I expect some other aspects of GP to be helpful, besides feature analysis—but that's not what this paper is about.)

(21) The careful use of PFs in analysis—again, especially if combined with other aspects of GP—can contribute significantly to our understanding of the historical relations among specific languages and dialects. This understanding can in turn help us better understand morphophonemic processes in a specific language. It can also guide

decisions about orthographies, particularly about common or compromise orthographies for a group of related languages or dialects. At times it is even possible to develop reading materials usable in more than one dialect by using insights gained through feature analysis.

(22) Most generally, a serious attempt to describe all the phonemic and morphophonemic facts about a language in terms of features helps develop a very useful attitude and aptitude in dealing more abstractly with speech data. By the very act of trying to identify PFs as distinct from phonetic ones, you start learning to think of possible analyses where the match between phonetics and phonemics is less straightforward. Frequently these more abstract analyses turn out to be closer to native intuitions. (A good example of such abstract thinking is the interpretation of syllable-final glottal stop as a syllable prosody, as reported at this seminar by Anne Cochran for some languages of Papua New Guinea, and as done independently by Raymond Wood for a group of languages in Australia.) Such habits of abstract thinking can pay off in grammatical and semantic analysis as well.

5. If what I've been saying so far rings true, what does it mean for our schools? In general, it means we should seek ways to teach a more abstract approach to data analysis, particularly in phonology. Specifically:

(23) The beginning phonology course should teach the explicit use of PFs in such areas as phoneme inventory (with PFs used as labels

on phoneme charts or as terms in a prose description of phonemes), distribution of allophones, and morphophonemics. It should also stress the difference between phonological (phonemic) and phonetic features (so that, for example, students realize that statements like "/m/: [m] voiced bilabial nasal in all environments" does not give the phonemic features of /m/, but rather the phonetic features of [m]).

(24) The beginning grammar courses, as well as the phonology courses, should seek to teach a more abstract approach to analysis than is now often the case.

(25) The advanced phonology courses should build on the foundation for first year outlined in (23) - (24) to teach the main aspects of GP: generally agreed upon features, phonological and morphophonological rules, and application to historical and dialectal studies.

(26) I am not familiar with the present content and aims of the literacy courses. I would imagine that probably in the beginning literacy courses, and definitely in the advanced ones, some attention should be given to the application of insights from feature analysis to orthographic and spelling problems.

Experienced S.I.L. staff may well ask where time can be found to fit material on PFs into an already crowded beginning phonology course. The best answer I can give is that I felt we were successful in doing it the two semesters I taught the course at Dallas. Three reasons for this apparent success were: most of the material was already implicit in the course anyway; teaching explicit use of PFs helped some students grasp other parts of the course better (particularly morphophonemics);

I spent less time on certain topics that I felt less useful (such as the contrastive status of syllable types and rhythm group types). Obviously we won't all agree on which topics are most important, which least.

Teaching a more abstract approach to both grammatical and phonological analysis may be an unrealistic goal for many or even most of our students. If so, let this be the area of extra challenge for the top students. Teach a more concrete, even "God's truth", approach to those students who are struggling; but for the sake of our future consulting team (in literacy and translation as well as linguistics), challenge those who can take it with abstract alternative analyses, and let them identify the reasons for preferring each analysis in turn. The same goes for the advanced courses, though hopefully a higher proportion of the advanced students will be able to handle a more abstract approach.

If any of the above recommendations are taken seriously, there are obvious implications for the training of the staff. I don't think the difficulties in that regard are insurmountable. Many of the notions of GP are implicit in tagmemics—what is the etic/emic distinction if not an insistence on abstracting away from the observed data? —and the notational conventions are neither many nor complicated. In the long run, of course, the best way to ensure that future staff is familiar with a concept or theory is to introduce it into the courses now.

6. The easiest introduction to feature analysis in general, and GP in particular, is Sanford A. Schane, *Generative Phonology* (Englewood Cliffs: Prentice-Hall, Inc., 1973). It is not comprehensive, but it is clear. Robert T. Harms, *An Introduction to Phonological Theory* (same publisher, 1968) is more complete, but written in a more compact style with fewer examples, and therefore harder to follow. I don't think that N. Chomsky and M. Halle, *The Sound Pattern of English* (New York: Harper & Row, Publishers, 1968), Part IV is significantly harder. And it is the standard reference for contemporary GP.

More theoretical background, amply illustrated, can be found in N.S. Trubetzkoy's *Grundzüge der Phonologie* (1939), which fortunately has been translated into English by C.A.M. Baltaxe as *Principles of Phonology* (Berkeley: University of California Press, 1969). Deriving from the same Prague-ian tradition are R. Jakobson, G. Fant, and M. Halle, *Preliminaries to Speech Analysis* (Cambridge, Mass.: The MIT Press, 1951) and Jakobson and Halle, *Fundamentals of Language* ('s-Gravenhage: Mouton, 1956). Both of these books are written in terms of acoustic features.

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P. Ladefoged's non-binary use of PFs is given in his *Preliminaries to Linguistic Phonetics* (Chicago: The University of Chicago Press, 1971). For another use of PFs, see S.M. Lamb, "Prolegomena to a Theory of Phonology", *Language* 42 (1966), pp. 536-573, especially p. 553.

AREAS OF MEANING AND IDIOMS

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INTRODUCTION

The purpose of this paper is to discuss areas of meaning and idioms. While the two topics are closely related, I would like to discuss them separately. In the case of the former, a rather general discussion, and, for the latter I would like to take a look at Chafe's (1970) postsemantic processes in regards to idiomaticization.

AREAS OF MEANING

Words generally have three types of senses: primary, secondary, and figurative. The primary sense or central meaning is the first meaning that a native speaker will give to a word out of context. Pike gave several criteria for determining the central meaning of a word. First, it is generally the meaning which was learned early in life. Second, it is likely to have reference to a physical situation which is encountered by the child as he learns the language. Third, in the community as a whole it may occur more frequently than any one of the marginal senses (Pike pp. 600-601).

Secondary senses or extended meanings are those which the same word carries and are related to one another by some shared thread of meaning (Beekman & Callow p. 94). Hence we can speak of the leg of

a chair, a news leak or a blade of grass, using leg, leak and blade in secondary senses. It is obvious that in the case of secondary senses that many of the nuclear semantic components of the primary sense are not recognized.

Whereas the key to secondary senses is the shared thread of meaning, the key to figurative senses is an associative relation. These relations fall into two broad categories: contiguous and part-whole (Beekman & Callow Chap. 6).

The relationships based on contiguity are temporal, spatial, and logical.

The first relationship is between an event and time of that event, one of the most common being the use of the word day, as the "day of the Lord" where day refers to the events which will take place at the time of the Lord's return.

The spatial relationship is a semantic connection based on locality. "P.N.G. is having a workshop", and "The Kingdom of Heaven" are examples of such relationships where P.N.G. would refer to the people who reside there and "Heaven" would refer to God.

The third contiguous relationship, the logical, is based on cause and effect (Beekman & Callow p. 98). "Herod beheaded John" (Herod

caused John's head to be cut off with a sword in the hand of a soldier) and "The director gave me a message" (The director caused the secretary to give me a message) are examples.

The second category of associative relations, part-whole, consists of member-class, constituent-whole, and attribute-whole.

In the case of the member-class relation, a specific member of a generic class is used to represent the entire class. The use of the term "bread" when referring to food in general is a case in point.

The constituent-whole relationship is reciprocal. That is, a constituent member can be used to figuratively represent the whole, or the whole can represent a constituent part. "It will be good to have a roof over our head" where "roof" is used for house is an example of the first; while "preach the gospel to every creature" where "creature" is used for human being is an example of the second.

The third type of associative relation, the attribute-whole, focuses on a particular quality or appearance associated with a thing. Again, this relationship can be reciprocal. That is, a whole can be associated with a particular attribute, e.g. a donkey can represent stubbornness, a pig filthiness, fire destructiveness, etc., or an attribute can represent a whole, e.g. "the most High" would represent God.

Beekman & Callow say that metaphor and simile are based upon associative relations (p. 120). However, as we shall see in the second half of this paper, Chafe has handled certain metaphors as restricted idioms.

It has not been my purpose so much to explain in detail the various senses which words may have, but rather to lay a foundation for the discussion of areas of meaning.

Area of meaning is no more nor less than the range of semantic values a given word can have in various linguistic contexts. In order to determine this range, it is necessary to determine the collocates for the various senses of a given word. By collocates, I mean those significant terms which can be associated with a given word and its various senses. The more generic a word and the more extensive its secondary and figurative senses are, the wider its collocational range will be and hence the wider its area of meaning (See Beekman p. 162f).

I think that it is intuitively obvious to anyone who has given any thought to languages, that the collocations for a given word with the same primary sense in languages x and y will not overlap 100%. In fact, collocational range will not necessarily be the same for dialects of the same language. A comparison of American English with Australian English is a case in point.

While I say this is intuitive, I think it is enlightening to look at a study by Huttar (1975). He was trying to establish what conditions determine the area of meaning of a lexical item in language L after it is borrowed from a source language S. I won't go into the details of the study other than to say that he compared the areas of meaning determined by their various senses for 20 lexical items in Djuka (a creole spoken by bush Negroes in Suriname) with the areas of meaning of the same items with 43 other languages, both pidgin/creoles and non-pidgin/creoles, around the world.

The results of this study support the view that when a lexical item is borrowed, the semantic structure of the item is determined by the "linguistic substratum" which subsumes the total linguistic background (genetic, areal, and contact phenomena) of the speakers of L, but does not include the extralinguistic cultural background. It is interesting to note that Huttar's study gives no support for universals of borrowing or universals of semantic structure. For our discussion today I think that this study is relevant in that it supports the view that areas of meaning do not overlap completely between languages x and y.

(I would like to raise a question at this point. In the study of a foreign language, particularly a non-Indo-European language, how does one determine when a word is used in a secondary or figurative sense, or is in fact simply homophonous?)

IDIOMS

I would like to move on to a discussion of idioms and particularly Chafe's postsemantic process in relation to idiomaticization.

The dividing line between metaphors and idioms is at best rather hazy. For our purposes today, however, I should like to ignore the former except as they are related to Chafe's theory of idioms.

The best place to begin a discussion would be to offer some of the available definitions of idioms.

The American Heritage Dictionary defines idiom as "A speech form that is peculiar to itself within the usage of a given language" (p. 350). Beekman and Callow define an idiom as "...an expression of at least two words which cannot be understood literally and which function as a unit semantically" (p. 121). Nida and Traber say of idioms that they "are typically constructed on quite normal grammatical patterns of phrase structure, but the meaning of the whole idiom is not simply the sum of the meaning of the parts, nor can one segment meaning... and assign a definable portion of the meaning to each grammatical piece... In other words, idioms are expressions in which the semantic and grammatical structures are radically different... One must treat the entire expression as a semantic unit" (pp. 45-46). Chafe identifies an idiom as "a semantic unit...which does not have a direct symbolization of its own but which trades on the symbolization

of another (or others)". He distinguishes two types of idioms, the restricted and unrestricted (p. 44).

The restricted idiom[1] (he used to call it a metaphor) is limited to a very narrow context and the literalization or postsemantic units of these idioms are "units of the same kind as the idioms themselves". Chafe's example of this is "red_2 hair" where the meaning of the semantic unit red_2 is sort of orange. The idiom red_2 then goes through the postsemantic process and is literalized by red_1 which now symbolizes red_2.

The unrestricted idiom is definable in the same way, only it is not limited contextually in the same way as the restricted idiom, nor is its literalization a semantic unit of the same kind, but rather a more complex postsemantic configuration.

Figure 1. is a chart of Chafe's language system. In any given process, some of the steps may be bypassed such as would occur in the non-idiom process (Figure 2.) where all of the postsemantic processes are bypassed.

As semantic change takes place within a language, there are discrepencies between the semantic units and their surface representation in a similar way to phonological shifts.

As phonetic shifts occur within a language, so semantic changes occur within a language as well. As a result there are discrepencies between the semantic units and their surface representations. Chafe says, "We can say, therefore, that semantic and phonetic change respectively serve to push semantic structure and phonetic representation away from the process of symbolization, both thereby increasing the ultimate distance between a semantic structure and its eventual phonetic output" (pp. 40-41). The end result is something like Figure 3.

In order to explain or handle this lack of congruence[2] between the semantic structure and phonetic output, Chafe posits what he calls postsemantic processes to arrive at postsemantic units/structure. Chafe explains, "new semantic units need some way of being converted into sound. They need not, however, acquire a sound which is distinctively their own but may avail themselves of the fact that there are other semantic units which already have established symbolizations...What happens...is that the symbolization resources or already existing semantic units are appropriated. In brief the new semantic unit is converted postsemantically into another semantic unit or configuration of semantic units, and the latter then go on to be symbolized as usual" (pp. 41-42). This process is shown in Figure 4.

Chafe uses three main arguments in defence of the postsemantic process in the case of idioms.

First, when the idiom is present, there is a meaning present which is not present in the literalization of the idiom. Conversely, the postsemantic unit is not semantic - that is, it has no meaning - but it must be there to explain the phonetic output (p. 42). This is the reason that an idiom can be ambiguous. A single phonetic output may be either a semantic unit or a postsemantic literalization of the semantic unit (idiom). Therefore, "Tom kicked the bucket" is ambiguous because either the process shown in figure 2 or figure 4 is operating.

The second defence is based on phonological arguments. Invariably, an idiom follows all of the phonological rules and irregularities which apply to its literal counterpart. If the phonetic output of the semantic unit was based directly on the semantic unit (idiom), we should expect phonological rules to function on the unit as a whole. We should expect the past tense of the idiom "to fly off the handle" to be something like "to fly off the handled". However, the past tense of the idiom is identical with its literal counterpart. Hence, we can conclude that phonological processes are acting on the postsemantic literalization of the semantic unit (idiom) (p. 46).

The third defence of postsemantic processes in idiomaticization is based upon the inability of idioms to be manipulated semantically.[3] The units within the postsemantic configuration of the idiom are not

available for manipulation. Hence in the idiom, "to fly off the handle" we cannot make "handle" indefinite because the semantic units are not present (pp. 46-47). This tends to support Chafe's view that the phonetic structure is the symbolization of a composite post-semantic configuration and not a single semantic unit.

Generally, idioms have literalizations which are semantic in their own right. However, not all idioms have a literal counterpart, i.e. some idioms have postsemantic literalizations which are not at the same time possible semantic structures. In such a case, the phonetic output can only be understood in its idiomatic sense, and is not ambiguous. Chafe sights "spic-and-span" and "come a cropper" as such examples.

I would assume that has resulted from semantic changes being so great that the original semantic units initially symbolized by the phonetic output have been lost. This lack of a possible semantic structure for some literalizations is not the same thing as a dead metaphor. While a dead metaphor may be an idiom, it does not mean that it has to have a literal counterpart. A dead metaphor is one which is immediately understood by a native speaker of the language while in the case of a "live metaphor", the hearer has to focus on the primary meanings of the words being used metaphorically (Beekman and Callow pp. 131-133).

Summary of Chafe's Language System

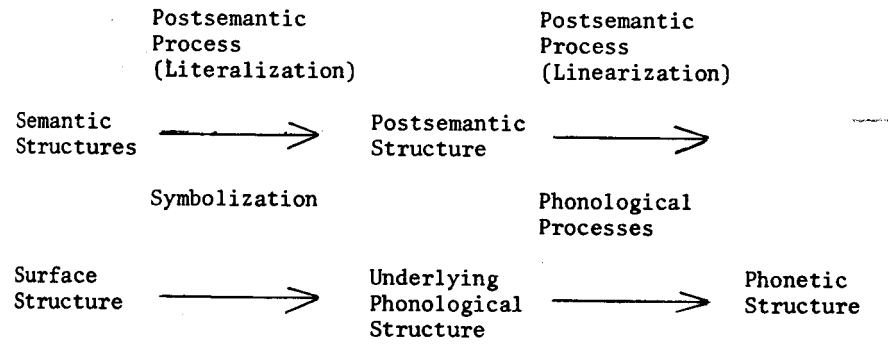

Figure 1.

Non-idiom Process

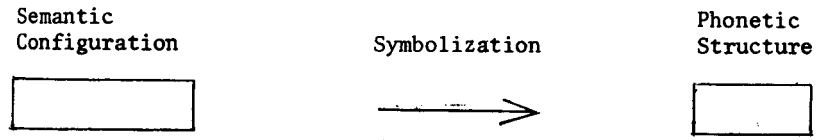

Figure 2.

Symbolization

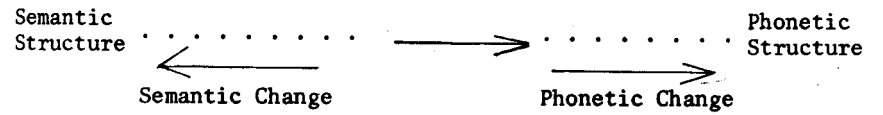

Figure 3.

Idiomaticization (Semantic Change)

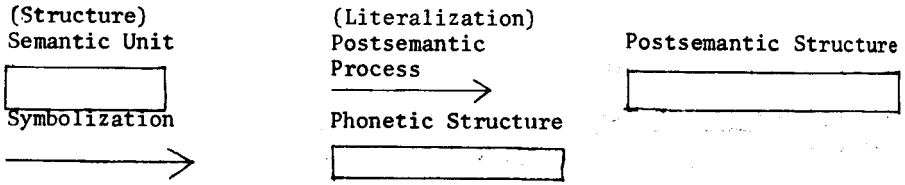

Figure 4.

NOTES

1. I believe that what Chafe calls the restricted idiom, words such as red$_2$ and make$_2$ (in make a bed), Beekman and Callow would consider as secondary senses of those words. "Red" would have the primary meaning of the colour red within which fall other colours with a range of such and such. "Make" would have the primary meaning to construct and a secondary meaning of making presentable.

2. Longacre talks about these non-correspondences between semantics and surface structure as something that languages do both unintentionally as well as intentionally. He says that frequently there is a very real effort to obtain stylistic effects in which new capacities for expression are obtained by putting the surface structure out of phase with the deep structure (pp. 5-6).

3. Chafe does recognize some exceptions to this rule in regards to idioms such as "to bury the hatchet" which can be possivized to "the hatchet was buried" and still carry the idiomatic meaning. He says, "Some idioms, however, evidently allow their literalizations to be treated as if they were semantic rather than postsemantic structures... (p. 71).

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NOUN PHRASE COMPONENTS

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I. SEMANTIC NOUN PHRASE ELEMENTS

A. Semantic Content

1. Head Item
   a. simple: Bill, house, year
   b. compound: cups and saucers, sheep not goats, miles and miles, sheep or goats
   c. named: Lake Gennesaret, Madison Street, a man named John

2. Quantification - Modification by Numerals, Units
   a. specific numbers: 1, 24, 1001
   b. general numbers, degree: much, little, more than, not quite, just, plural -s, full, all, half, many, no
   c. classifiers, units: piece, pair; litre, mile; cupful
   d. part of a numbered set: one of the six, two of the thirty, one of the (pl.) houses
   e. limitation (paragraph-level info.?): only, at least, even

3. Possession ("genitive") -Modification by Nouns
   a. owner: (alienable) my [house]; (semi-alienable) my [food], my [drink]
   b. part of a body: my [arm], [the tip] of the pencil

c. user: [the city] of the Samaritans, my [house]

d. status relation: our [Lord], [servant] of the high priest, Joan's [husband]

e. kin relation: [brother] of James, Bill's [son]

f. source, origin: [Joseph] of Arimathea, Marshall [Plan], British

g. specific type: [the ship], a schooner, birch [tree]

X clausal relations (quasi-genitives) (nominalization)

X sentential relations (quasi-genitives) (nominalization)

(Note: X = semantic elements from a different level but which commonly appear in surface noun phrases.)

4. Quality - Modification by Adjectives

a. simple physical qualities: big, red, square, 10 feet tall, male, old, heavy

b. material: wooden, cloth

c. evaluation: good, unrighteous, glorious

d. human or animate attributes: happy, intelligent, gloomy

X verb phrase adverbials: heavy [smoker], alleged [killer]

X clausal descriptions (relative clauses)

X discourse content: the message of the gospel

5. Orientation

a. definiteness: the, a, any

b. deictic, demonstrative: this, that, here, there

c. locational: [Bethleham] of Judea, at Jerusalem, in Egypt

d. order: previous, later; first, fifth, last

B. Semantic Prosodies

1. Prominence structure within the phrase, highlighting one or another of the elements

C. Encyclopedia Information

1. Referential equivalents (not derivable from the dictionary)

a. contextually known: John = the man in the raincoat = the banker

b. known from local culture: the chief = the oldest man

c. universally known: sunlight = daylight, Springfield = the capital of Illinois

2. Acceptable Collocations

a. contextually acceptable

b. culturally acceptable

c. universally acceptable

II. SURFACE NOUN PHRASE FORMS

The information flow in the paragraph will determine the form of expression, for example:

a. normal noun phrase: John's big house over there

b. clause: John has a big house over there

c. with deletions: the big house

d. with weakened or pronominalized elements: his big one there

e. appositive: John's house, the big one over there

f. special emphasis: John's house over there which is big

X phrasal transforms of clauses may add slots or restrictions

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SOME FUNCTIONS OF ROTOKAS REFERENTIALS

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1. INTRODUCTION

The Rotokas language is spoken by approximately 4,200 people living in central Bougainville (North Solomons Province). It is part of the Kunua-Keriaka-Rotokas-Eivo Stock of Non-Austronesian languages. Because of its geographic position, however, it does share some features of the Austronesian languages which border the area to the north (Allen and Hurd 1963).

The fact that Rotokas referentials are common occurrence in texts has long been realized. Just recently a letter was received from a Rotokas man in which 18% of all the words written were referentials of the types to be discussed in this paper. It was because of their frequent use, and because of some oddities among them that a description of the referentials was written and published (Firchow 1971). In that paper, however, the functions of the referentials were not handled to any degree.

In presenting "some functions" of the referentials in this paper, it is to be understood that these are not conclusive. It was thought that the presentation might be profitable for the Consultant Seminar in that a wider spectrum of functions are suggested than normally thought of, and that the function of highlighting is examined as it occurs on several levels. The idea of a referential functioning as a conjoining word or phrase is also noted.

2. IDENTIFICATION OF REFERENTIALS

2.1 In this paper the term referential is restricted to those forms in Rotokas which may occur with nominal affixation only. Some forms described will be noun-like, others are very similar in form to Rotokas personal pronouns, while still others range from manner-like words to a dummy morph. However diverse they may seem there are several common characteristics which unite them in a single nominal-like word class, the referentials.

2.2 The terms anaphoric, ambiphoric, and cataphoric are useful in describing the various referentials. It is in fact the direction from referential to referent syntactically which distinguishes the three classes of referentials, i.e. the referent precedes anaphoric referentials, it may precede and/or follow ambiphoric referentials, and it follows the cataphoric referentials.

2.3 Three symbols will be used in the examples: parentheses will bracket the portion of the construction (i.e. the referent) which may be identified by the semantic content of the referential, arrows will give the direction from the referential to the bracketed referent, and underlining will indicate the portion of the construction of which the referential is an included member. The referential being illustrated will appear in capital letters.

3. CLASSES OF REFERENTIALS

3.1 There are three classes of Rotokas referentials. As has been mentioned already, the referentials are defined syntactically on the basis of the direction of the referent from the referential.

Class 1 anaphoric referentials are divided into three subclasses.

Class 1A consists of those words which include a noun and the Referential Markers o-...-a as in o-kepa-a 'which/house' where kepa means 'house' and the prefix o- with the suffix -a mark this regular noun as the referential okepaa 'which/house'.

Example:

(1) (kepa) rava-ta-vere ← OKEPAA iare opo-pere
(house) ready-you-future ← WHICH towards taro-we future
'ready a house for which we will get taro'

Class 1B consists of the single referential uva 'where/when'.

Examples:

(2) kare-u (vo) ← UVA rera-i
return-you (here) ← WHERE he-present
'you return here where he is'

(3) (vo tuariri) ← UVA igei avu iraraaro upo pura-pa-i-vora
(in long ago) ← WHEN our ancestors fight make-were-they-past
'in the past when our ancestors were fighting'

Class 1C consists of a complete set of pronouns which denote person, number, and gender. The set is given in the Appendix Chart 1.

Examples:

(4) (katai-toa raga Pauto) ← IRA voea-pa aioa kareke-re-va
(one-male only Pauto) ← WHO them-for food realize-he-past
'Pauto is the only one who realized food for them'

(5) (raivarei) ← OAREA oisioa resi-pa-i-ve vo uruia vatuaro-ia
(two paths) ← WHICH always mark-be-they-would at village edge-at
'there were two paths which they would always mark at the edge of the village'

Class 2 ambiphoric referentials indicate that the referent (which may be a word, phrase, clause, sentence, or paragraph) may precede or follow the referential. There are two Class 2 ambiphoric referentials oisi(o) 'like this' and eisi 'like that'.

Examples:

(6) (paragraph) uva ragai vearopie-re-va → EISI osia vi tavi-pa-a
(paragraph) so I heal-he-past ← LIKE THAT as you tell-am-I
'(paragraph) so he healed me like that as I am telling you'

(7) uva viapau OISIO → (riro kaekae siposipoa)
so not LIKE THIS → (large long story)
'so it is not a very long story'

(8) (ava-pa-ra-i) ← OISIO → pura-ro-epa (ari kare-ra-vere)
(go-am-I-present) ← LIKE THIS → say-he-past (but return-I-future)
'"I am going," he said this, "but I will return."'

Class 3 consists of the two referentials vo and aue. The first of these two forms is equivalent semantically to the Class IB anaphoric referential uva 'where/when' differing only in that the referent follows the Class 3 cataphoric referential.

Examples:

(9) voeao VO-va → voea upo-i-va (Aita-aro)
these HERE-from → them fight-they-past (Aita-locative)
'these from here, the Aita area, fought them'

(10) rupa-epa voea-re VO → (tuariri-pa-vokia)
dark-past them-for THEN → (long ago-agent-day-on)
'darkness fell on them then on that long ago day'

The second cataphoric referential of this class is without semantic content; however, it is a most useful and frequently employed device to signal a following referential which may be a word, phrase, clause, or sentence. The symbol Ø will represent aue in the transla-

tion of the examples. Although as a referential aue is a dummy morph, the morph aue as a verb stem means 'to consider' or 'to be imminent'. There may or may not be some common "deep meaning" shared by both.

Examples:

(11) varao AUE → (aio okovoro) tapo teki-i-ve vosia kopi-ro
these Ø → (food gardens) also take out-they-would when die-he
'they would take out these food gardens also when he died'

(12) vopeva AUE → aio-a-epa (koie kare)
three Ø → eat-they-past (pig animals)
'they ate three pigs'

3.2 There must always be agreement between referential and referent as to person, number, gender, and class where relevant. Class 1A referentials rename the referent so that agreement is inherent within the construction of the referential. Class 1C referentials comprise a set of relative pronouns and agreement or concord must be accounted for when selecting the referential from this set. The Class 3 referential, aue, and less often the Class 2 oisi(o) may optionally be affixed to agree with the referent or may designate the person, number, gender, or class of the referent when the referent is not a affixed by any of these markers. This is discussed more fully in Section 4.1.

4. SUGGESTED FUNCTIONS OF THE REFERENTIALS

4.1 In the discussion about agreement above it was mentioned that a referent of Class 2 referentials or the Class 3 aue may occur without the affixation normally thought of as part of its construction. For example aio is the verb stem 'to eat'. The normal nominalization of aio is the affixation of -a 'nominalizer-singular-neuter'. However, the verb stem may occur without the nominalizing affixation when the Class 3 referential aue precedes the verb stem functioning as a vehicle for that affixation, i.e. aue-a aio 'food'. At the lowest level, then, the Class 3 referential aue, and less frequently the Class 2 referential oisi(o) may function as vehicles for affixations denoting nominalization, pluralization, or specification. The referential and referent may occur contiguouously or may be displaced by one or more words. When they occur contiguously there may be a degree of highlighting by the presence of aue or oisi(o); however, when there is displacement the degree of highlighting is increased as will be shown on the phrase and clause levels in particular.

Examples: (nominalization), (pluralization), and (specification)

(13) AUE-a → (variri) pura-pa-u
Ø-singular/neuter → (to pray) make-be-you
'you be making prayer'

(14) aioa ou-pa-i-ve AUE-ara → raga-ia (vokiaro)
food get-be-they-would Ø-plural/neuter → only-locative (night)
'they would be getting food only during the night times'

(15) AUE-ro → viei-aro (kovo-ara)
Ø-plural/specific → count-possessive (cargo-plural/neuter)
'the count of these particular supplies'

It will be noted that in example 15 the plural suffix was already present affixed to the referent. The specifying plural suffix affixed to the referential aue, however, dominated the meaning. This indicates that the referential aue in this case (and it is presumed in most other cases) draws attention to both the referent in and of itself and also to the various features of that referent. In other words it functions to some degree to highlight the referent.

4.2 Moving on to the Phrase Level, the first function to be discussed is similar to that described above, i.e. a vehicle for affixation. Again it is mainly the Class 3 referential aue which functions as this vehicle. On the Phrase Level it is the Possessive Phrase which is affected.

The normal Possessive Phrase is as follows: + possessor + possessed item + -aro 'possession'. For example: ragai vaisi-aro 'I name-possessed' or 'my name'. With the use of aue, however, the normal phrase may take any of the following forms: ragai AUE-aro → (vaisi) 'my name', ragai va-aro AUE → (vaisi) 'I it-possessed Ø → (name)/my name', kataitoa raga AUE-aro-ragai (vaisi) 'one male only Ø-possessed → I (name)/my name alone'. The highlighting effects of aue increase as the phrase becomes more complicated, i.e. the effect increases in the above three examples with the final example (where displacement occurs) demonstrating how double highlighting is possible. In this case both the possessor and the possessed item are displaced from their normal positions in the Possessive Phrase.

The second function of the referentials on the Phrase Level is that of subordinating elements of clauses which fill Modifying slots of the phrase constructions. In English these clauses would be the restrictive (or modifying) relative clauses. Only the anaphoric referentials are involved. Functioning as subordinating elements of restrictive relative clauses, the matters of theme and non-thematic parts of constructions should be considered.

In this paper "theme" is that element of the construction which conveys "given" information. The "non-thematic" part of the construction conveys "new" information. For the element to be "new" the essential point is that its occurrence in the present construction must be unpredictable (Kuno 1972).

Hutchins (1975) states that a restrictive relative clause typically is a "repetition in some way of a specification previously established (within or outside the present discourse) with respect to the noun or noun phrase at the 'head' of the clause." This means that "a restrictive relative clause can only convey 'given' information and the 'head' noun itself is generally 'given'.... The relative pronoun is 'thematic' in so far as it determines how the modification is to be oriented with respect to the element being modified. On the other hand, it is quite unlike a true theme in that it cannot be freely selected."

He goes on to say: "Like the 'non-thematic' part of sentences in which the theme is 'given', we may say that in broad terms a relative clause...constitutes a 'comment' upon an element, a modification or specification of the information already known about it. In this sense we may talk of relative pronouns as being 'subthematic', paralleling at the clause level the function of themes at the sentence level." (1975:130)

Examples 1 through 5 demonstrate this "subthematic" function of the Rotokas referentials. In example 1, the Class 1A referential okepaa 'which/house' may be substituted by the Class 1C referential oa 'which/it'. The former is obviously much more specific in renaming the head of the phrase, i.e. kepa 'house'. With this in mind it is suggested that the use of the Class 1A referentials instead of the Class 1C referentials causes greater cohesion within and/or between sentences in relation to theme.

4.3 On the clause level the referentials function in the displacement of slot fillers (most likely for the purpose of "focus"), as vehicles for Clause Level clitics, and to "bracket" expressions of verbal ideas which communicate a message or an inward psychological state.

The Rotokas clause is basically a S O V construction with Time and Location occupying peripheral slots. The displacement of a slot filler from its normal position appears to take place when the speaker wishes to focus upon that particular filler. A normal S O V clause is as follows:

(16) rera takura-isi aio-re-va
he egg-round/singular eat-he-past
'he ate an egg'

However, when the egg is in focus as the particular object eaten, the referential aue is employed to facilitate displacement of the object named to a position following the verb:

(17) rera AUE-isi → aio-re-va (takura-isi)
he Ø-round/singular → eat-he-past (egg-round/singular)
'he ate an egg'

The same effect may be accomplished, but with a greater degree of specificity when instead of using the dummy morph, aue, a nominalized adjective is used in apposition to the displaced object:

(18) vegei-pa RIRO-A → vate-si (sirao-a)
we two-for BIG-SINGULAR/NEUTER → give-you two (to sorrow-sing/n)
'you both gave the two of us great sorrow'

The Class 3 referential vo is used when the focus is placed upon the locative. It is not that the locative is displaced to the end of the clause (since that is the normal position for it), but that it is referred to by the referential preceding the verb which causes attention to be drawn to it. In this position the referential often is affixed by clitics normally occurring on the locative:

(19) VO-va → rovo-ro-epa (vatuaro)
HERE-from → start-he-past (side)
'he started from the side'

Although the subject may occur following the verb as a means of focus, it is more common for the subject to be placed in a lexical frame in its clause-initial position in order for that purpose to be accomplished. The lexical frame exemplified in the example 20 is a common Rotokas phrase, i.e. 'it is...this which/who':

(20) (rera-a ro tugarato) ↔ IRA okoe-pa-ro-epa
(he-is this tamboran) ← WHO crab-is-he-past
'it is this tamboran who was catching crabs'

Returning briefly to the matter of theme, Hutchins points out that lexical frames such as the one exemplified above in 20 are the thematic parts of the construction, but that they contain "new" information. Furthermore, the which/who clause itself contains nothing but given information. That this is contrary to the definition of "theme" is explained in that the "new" information in the construction is located in the case relation of the theme and not in the thematic element (1975:116). This is only an aside and not completely relevant to the discussion presented here.

The second function mentioned is that of vehicles for Clause Level clitics. In short, the referentials serve as convenient means to get around otherwise syntactically complicated constructions. Two examples are given below; the first includes a clitic -va 'with' and the second does not:

(21) ava-ra-epa koie tara-sia AUE-va → (toga) kae-pa-oro (ora kaakau)
go-I-past pig hunt-to Ø-with → (spear) carry-while-ing (and dog)
'I went to hunt pig with a spear I was carrying and a dog'

(22) AUE → koko-oro ita viri-re-va (gau ovi ora va vao gara rovu iava)
Ø → pour-ing again circle-he-past (tears liquid and it this Gara lake from)
'he circled again pouring out the tears and this from the lake called Gara'

The final function on the Clause Level is that of "bracketing". An example in English will best illustrate what is meant by the term: He said this, "I am going home." In the sentence the referential "this" brackets what is said, i.e. "I am going home." Class 2 ambiphoric referentials function in this way to bracket quotes, thoughts, desires, considerations, negations, etc. It could be said that the construction(s) bracketed are brought into focus; however, because of the high frequency of occurrence the author feels that this is probably not the main function (if it is a function at all).

Examples of quote, consideration, negation:

(23) OISIO → pura-ro-epa (kepa pau-ri)
LIKE THIS → say-he-past (house build-you)
'he said this, "you build a house"'

(24) OISIO-re → aue-pa-ro-era (ra oira iia-re-ve)
LIKE THIS-to → consider-was-he-past (then she spear-he-would)
'he was considering this that he would spear her'

(25) viapau OISIO → (ava-pa-ra-i)
not LIKE THIS → (go-am-i-present)
'I am not going now'

It is recognized that within this section there are included in it examples of levels above the clause. However, for the sake of organization they are not differentiated.

4.4 Above the clause level the referentials function mainly as conjoining phrases. Whether they conjoin clauses within sentences, sentences within paragraphs, or paragraphs within discourses is dependent to a large degree on what the author terms "functional weight". Without going into the term which has been proposed in the Rotokas Grammar (unpublished) suffice it to say that the more compli-

cated the conjoining phrase, the more functional weight the referential has. The more functional weight the referential has, the more apt it is to occur joining propositions of greater complexity. The three examples given below demonstrate the referentials being used in conjoining phrases of increasing complexity, i.e. within a sentence (26), within a paragraph (27), and within a discourse (28).

(26) evaova tosi-re-va ragai upo-sia AUE iava → (uvare asia-pa-ra-epa rera-pa)
tree chop-he-past I hit-to Ø about → (because dislike-was-I-past him-for)
'he chopped a tree to hit me because I was disliking him'

In this example the Class 3 referential aue with iava 'about/from' constitute the least complicated conjoining phrase for that referential (as is also the case with the Class 1C referential oa 'it' with iava which together mean 'after which/because of which').

(27) uva vo vokio-ia igei vo touo avekata-a// AUE vituaro iava →
so this day-locative we this existence easy-is// Ø basis about →
(uvare aue-ro toupaivoi vo vokio kovopara oara uvuipai riro
(because Ø-these exist this day tools which able-are great
varivaripara verapaive)
strong-efforts rid-would)
'So at this time our way of life is easy. Because of this reason there are tools today to get rid of the hard work.'

A phrase in which the Class 1C referential oa occurs that would function at this level of complexity would be eva-a oa iava 'it is that because of which'. This phrase or variations of it commonly occurs conjoining sentences within a paragraph.

(28) (paragraph)// OISI-a → ← (EISI) osia iava...paragraph
(paragraph)// LIKE THIS-is → ← (LIKE THAT) as because of... paragraph
'paragraph// Because of it being like that...paragraph'

There are several variations of this basic phrase. Some of these not only join the propositions, but also they may serve to focus attention on a preceding or following proposition in conjunction with a summary statement within a discourse.

5. SUMMARY

To summarize, it appears from the data that it is predominantly the cataphoric referentials which are involved in focus (on the clause level and above) and highlighting (on the word and phrase levels). The anaphoric referentials for the most part are involved in thematization (and cohesion) of one kind or another.

As was brought up in the Seminar, it is one thing to talk about focus, highlighting (prominence), and theme from a non-native's point of reference. However, it is a different matter to get the native speaker's opinion regarding these facets of meaning. It was concluded that a good, reliable test for identification of elements in focus etc. has yet to be devised.

APPENDIX

Class 1C Anaphoric Referentials

	Singular	Dual	Plural
first person	ragoa 'I, me'	vegoa 'we 2'	vigoa 'we all (inc)' igoa 'we not you (excl)'
second person	vigoa 'you'	veigoa 'you 2'	visigoa 'you all'
third person masculine	ira 'he, him'	aiterea 'they, them 2' (m/m or m/f)	oea 'they, them all' (all m or m/f)
third person feminine	iria 'she, her'	airea 'they, them 2'	airoa 'they, them all'
third person neuter	oa 'it'	oarea 'they, them 2'	oara 'they, them all'

All forms are translated by who, whom, which in the examples according to their function.

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VERB MORPHOLOGY AND DISCOURSE PROSODIES

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In this paper I consider some examples in Oksapmin[1] from which I make three suggestions. The three suggestions are: (a) that we analyze grammatical structure separate from phonological structure, (b) that we analyze certain grammatical features at a different level in the grammatical hierararchy than we traditionally have, and (c) that we abstract features at a level where they function, so that we do not use the same features to characterize constructions at several different levels.

The discussion of my above three suggestions is made within a Tagmemic framework. Thus I do not attempt to show that phonology and grammar are two modes of language, nor that these modes are semi-autonomous and each hierarchically structured. These are assumed.

To begin our consideration of my first suggestion (that we analyze grammatical structure separate from phonological structure) let us look at the following simple Oksapmin sentence of two clauses.

(1) oh imaah su-maa di-p-ri.
he pig kill-seq.s/s eat-far.past-mood
'He killed a pig and ate it.'

The period at the end of example (1) represents falling intonation, which contrasts with phrase pitch medially. A period in the morpheme-by-morpheme translation represents a multiple gloss for a single morpheme. The verb 'kill' has a suffix -maa, which expresses a sequential relationship between two clauses that have the same subject (seq.s/s). The verb 'eat' has, instead of a relationship marker, tense and mood markers.

In Papua New Guinea the verb with the relationship marker has traditionally been analyzed as a medial or dependent verb, and the verb with tense and mood as a final or independent verb. Once medial/final verbs are established, the linguist usually sets up dependent clauses (a clause containing a medial verb) in contrast with independent clauses (a clause containing a final verb). If we analyze example (1) in this way, 'he killed a pig' would be a dependent clause and 'he ate it' an independent one, with 'killed' a medial verb, and 'ate' a final one.

Several things bother me about the distinctions dependent/independent clause, and medial/final verb.

(i) For the medial/final distinction, the linguist usually claims a difference in both morphology and distribution. These two "differences" seem to me, however, not to be two differences, but rather two facets of the same difference.

(ii) Apart from distribution, a medial verb is characterized by having a relationship marker, while a final verb is characterized by having tense and mood markers. At the clause level, a dependent clause is characterized by having a medial verb, while an independent clause is characterized by having a final verb. But this is equal to saying that a relationship marker characterizes both medial verbs and dependent clauses, and that tense and mood characterize both final verbs and independent clauses. In other words, the same verb morphology is used to distinguish constructions at two different levels.

(iii) The internal structure of a dependent clause is no different from an independent clause; the organization of the clause level tagmemes such as subject, object, and predicate are the same for both.

(iv) The verb morphology has functions on a level higher than the verb or clause in which it occurs. The suffix -maa, for example, expresses a relationship between two clauses.

Now suppose we assume that the verb suffixes in example (1) are not really verb morphology; that -maa, -p, and -ri are not part of the grammatical structure of the verb. From such an assumption we would have to say that these suffixes are phonologically part of the word, but grammatically part of another level. What would such a statement do to Tagmemic theory? It would do nothing but illustrate the claim that phonological and grammatical modes are semi-autonomous.

A Tagmemic analysis of the verb suffixes in example (1) usually puts them as part of the grammatical word, not because the theory requires it, but because the analyst is, I believe, overly influenced by the phonological structure. (An example of an exception to the traditional Tagmemic analysis is Staalsen (1972) where he analyzes the kind of suffixes found in example (1) as part of the grammatical clause.)

A re-analysis of the relationship marker, and tense and mood markers in example (1) is reflected in the following sentence formula:

Sentence =	$Base_1$	Link	$Base_2$	Termination
	clause	-maa	clause	tense and mood

The above bi-dimensional array is making certain claims.

(i) One claim that it makes is that relationship markers such as -maa and tense and mood markers are part of sentence structure, not verb morphology.

(ii) Another claim that it makes is that the clause in $Base_1$ is no more or no less dependent than the clause in $Base_2$. This is basically the claim that Franklin makes for Kewa (1971:102-3).

(iii) A third claim that the bi-dimensional array makes is that the occurrence of tense and mood signals the end of a grammatical sentence.

These claims reflect, I believe, the structure of the language. Such structure is not revealed if the phonological suffixes in example (1) are analyzed as verb morphology.

Just because I have analyzed tense and mood as part of sentence structure in Oksapmin, does not mean that they will be this for all languages. They may well be part of clause structure in some languages, or of even paragraph or discourse structure. But I doubt that they will ever need to be analyzed as verb morphology.

From the bi-dimensional array of sentence above I claim that tense and mood signal the end of a grammatical sentence. Initially I defined sentence termination in terms of both the grammatical features of tense and mood, and the phonological feature of falling intonation. As a result I ended up with three kinds of termination for a grammatical sentence.

(i) tense, mood, and intonation, as in example (1);

(ii) tense and mood only, as in example (2) where the verb 'see' has past tense and optative mood, but no falling intonation;

(2) saamin waamti-p-ning noh suti-p-ning.
wild.pig see-past-optative I kill-past-optative
'If I had seen the wild pig I would have killed it.'

(iii) intonation only, as in example (3) where the verb of 'putting' is deleted and falling intonation occurs on mataannong with no tense and mood markers.

(3) pamde-saa tom it mataan-nong.
bring.across-seq.s/s water back this.side-to
'Brought them across and put them back on this side of the river.'

Defining grammatical sentence termination in terms of both grammatical and phonological features combines two modes of language in the grammatical analysis. As can be seen from examples (1) - (3), however, each mode is somewhat independent of the other. When I analyzed each mode independently, I also found that the signal from each mode had its own function. Briefly, tense and mood terminate a structural unit, which then relates to a structural unit following it in the discourse; falling intonation terminates a unit of information in which the last item of the unit receives prominence.

The function of each mode can best be seen if one analyzes the phonological structure separate from the grammatical structure. It is also necessary to describe how the two modes interlock, but I believe that this can best be done after one determines what each is doing independently.

The above examples, then, illustrate two reasons why we need to analyze grammatical structure separate from phonological structure. Firstly, if we don't, we may analyze grammatical features at a point in the grammar where they have little or no relevance. Secondly, if we don't, we may fail to see the function that each structure is making in the discourse.

If one accepts my first suggestion, he will need to be prepared to analyze certain grammatical features at a different level in the grammatical hierarchy than we traditionally have. The need for practicing this second suggestion has already been illustrated.

I want to suggest two types of grammatical features that we need to reconsider in our analysis and possibly analyze on a different level. Both types have already been illustrated in example (1). The first type is items such as tense, mood and aspect. In Oksapmin, tense and mood are part of the grammatical sentence structure. Aspect should probably be analyzed as part of clause structure, although all three are phonologically part of a lower level.

The second type of grammatical feature that we need to reconsider and possibly analyze on a different level is what I have called "link" in the sentence formula. An item that expresses a relationship between two equal units, or that expresses a transition between two equal units I call link. Very often links are phonologically bound at a level lower than the level on which they function grammatically. So the -maa in example (1) is phonologically bound to the word, but expresses a relationship between two clauses.

Items that are analyzed as part of the periphery of a grammatical unit may very well be relating that unit to the one preceding or following it. Thus 'however' in example (4) expresses a relationship between two sentences.

(4) The boys went to the movie. John, however, stayed home.

In example (5) the word dawaa expresses a response relationship between two sentences.

(5) go sabaat-daa. dawaa noh sapaat-waa.
you go-interrogative yes I go-respond
'Are you going? Yes, I am going.'

I analyze this and the 'however' in example (4) as filling a grammatical link between two sentences, not as part of the periphery of one of the sentences.

Example (6) gives the first two sentences of a narrative text recorded on tape. The first sentence relates to both the preceding dialogue or non-verbal activity and to the following narrative monologue that begins in the second sentence. The preceding dialogue and non-verbal activity is referred to by the verb 'do this' at the end of the first sentence. The following narrative monologue is referred to by the phrase 'the story of the patrol officer's drowning'. The first sentence, then, actually relates two units of behaviour: the non-verbal activity to the monologue. I would thus analyze (6)a. as filling a link slot between two units at the discourse level.

(6)a. gin aakiaap ohwe tom oh maa sutip meng
now patrol.officer his water it kill talk

gin tep-nong matper-rim maa ih-yaa-oh.
now tape-to put-purpose do.this-immediate.past-mood

'We have sat down here to put the story of the patrol officer's drowning on tape.'

b. aakiaap baatror sapaan taan-nong deporo
patrol.officer patrol Sapaap side-to let.us.go.across

ri-maa maa waaihi-p-oh.
say-seq.s/s go.down-far.past-mood

'The patrol officer said, "I'm going to go on a patrol across to Sapaa," and went down on patrol.'

The third suggestion that I make is that we abstract features at the level where they function, so that we don't use the same features to characterize constructions at several different levels. Such abstractions I call prosodies. As an example of a prosody, let us

consider again tense and mood in example (1). I have said that tense and mood are part of the grammatical sentence, and that the presence of tense and mood terminates a grammatical sentence. That is, the occurrence of tense and mood terminates the sentence. The choice as to which tense and mood will occur, however, is not determined by the sentence structure. The choice of tense and mood, at least for narrative and procedural discourse, is made at the discourse level for the whole discourse. Tense and mood, then, can be abstracted for the whole discourse, as prosodic features of the discourse.

Some have called things like tense and mood mentioned above special features. But as far as I am aware, they do not abstract these special features, and as a result the same special feature may, for example, characterize both narrative discourse and narrative paragraph. My suggestion is that these features be abstracted at the highest level where they function, and that having been abstracted, they no longer enter into consideration of structure at lower levels.

Another kind of prosody can be illustrated from Oksapmin narrative and procedural discourse. Participants, times, and locations are made specific in narrative discourse, but general in procedural discourse. We can abstract these features and say that Oksapmin narrative discourse has a prosody of specificness, whereas a procedural discourse has a prosody of genericness.

In summary, I have shown that the relationship marker on the verb 'kill' in example (1) and the tense and mood markers on the verb 'eat' are not part of verb morphology. These markers are phonologically suffixed to the verb, but grammatically function as part of sentence structure. We can reflect this function only if we are willing to analyze these markers at a higher level in the grammatical hierarchy than we traditionally have. Even though tense and mood terminate a grammatical sentence, the choice of tense and mood is made for the discourse. We can reflect this structure by abstracting the features of tense and mood for the discourse.

NOTES

1. Oksapmin is a language spoken by over 5,000 people in the West Sepik Province, just west of the Strickland River and south of the Ok Om River.

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SOME THOUGHTS ON CLAUSES

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0. TERMINOLOGICAL NOTE

"Clause" here is a grammatical (syntactic) term only, not a semantic one as well. Whether "clause" can be given a useful definition applicable to all languages is a separate question from the choice to use it only for referring to syntactic units.

1. FUNCTION

Typically, clauses are used to express propositions. "Clause" belongs to syntax, "proposition" to semantics; so the preceding sentence embodies a hypothesis about the interrelation between units of the one component (hierarchy) of language and those of the other. The "typically" reminds us that the mapping from the one component to the other is not one-one; "typically" also claims some degree of statistical predominance for the mapping: proposition → clause.

Independent clauses are typically used to assert, question, request, suggest, express the desirability of, etc. the expressed proposition. Dependent clauses are used in these ways, but also to indicate that the speaker chooses to treat the expressed proposition as presupposed information common to him and his audience.

NOTE: These hypotheses about the typical functions of independent and dependent clauses are based largely on my intuitions as a native speaker of English. Those familiar with other languages should be able to confirm or disconfirm them as a general statement for all languages. Robert Litteral and Marshall Lawrence have cited data from New Testament Greek and Oksapmin, respectively, that suggest that the choice between independent and dependent clauses is likely to be related to the semantic dimension of prominence.

In short, clauses are for saying something about something—in contrast with phrases and lower-level grammatical units, which are typically used as labels for the items about which something is said.

2. COMPONENTS

The unit of meaning "proposition" is composed of the units of meaning "predicate" and 0 or more "arguments" (participants, props, setting). Correspondingly, the unit of grammar "clause" is composed of the units of grammar "G-predicate" and 0 or more associated grammatical functions, such as subject, object, adjunct. G-predicates are typically realized as verbal elements (including adjectives); the grammatical functions associated with G-predicates are typically

realized as nominal elements (nouns, pronouns, noun phrases, nominalized clauses). For some elements, it is their very distribution in such slots that forms the basis for calling them verbal or nominal.

3. DISTRIBUTION

As a unit of meaning above the level of proposition, let us assume a unit composed of one or more propositions plus a rhetorical predicate (as in Grimes). (If we want a name for such units, perhaps "compound proposition", a term commonly in use in logic, will do.) In the grammatical component (hierarchy), the corresponding unit above the clause can be labelled "sentence". By definition (given a hierarchical model), clauses are typically distributed in—i.e. typically realize functions of—sentences.

Since whole propositions also function as arguments of other propositions, however, clauses are also found (presumably universally) realizing functions such as subject, object etc.—hence they are called "nominalized clauses". Finally, since propositions function as descriptors of items within a complex label of an item, clauses (again I hypothesize: universally) are also found realizing grammatical "modifier" functions—e.g. relative and participial clauses ("adjectivized clauses", if you will).

4. DIMENSIONS

As Huddleston (*IJAL*, 1971) has pointed out, the notion of grammatical dimension (variable, parameter) propounded in Pike, "Dimensions of Grammatical Constructions" (*Language*, 1962), provides a useful etic grid for cataloguing various sorts of clauses.

a. proposition type ("transitivity"): the values within this dimension can be further sub-grouped according to number of arguments, and then distinguished by the respective roles of these arguments.

   0-argument clauses would be ambient.

   1-argument clauses would include stative, equative, and existential (and possibly locative?); and intransitive.

   2-argument clauses would include transitive, and very likely locative and semi-transitive (as in Hale).

   3-argument clauses would include the "giving" clauses usually conjured up by the term "bitransitive", and probably also clauses like "X put Y at location L" and "X elected/chose/appointed Y to be Z".

b. mood: the values within this dimension correspond to the notion of illocutionary force in the meaning component: declarative, wh-interrogative, yes/no-interrogative, imperative, optative,...

c. polarity: the values of this dimension are "positive" and "negative". (Various degrees of non-committal to the truth of an expressed proposition—cf. the numerous contrasting "maybe"s in Australian languages—may belong to this dimension, but I think more likely to the mood dimension.)

d. causativity: the values within this dimension include the presence or absence of a "causer" function superimposed on the other arguments. Perhaps other values, contrasting "forcing" and "permitting" as two types of causation, should be recognized here.

e. dependence: the values of this dimension include independent and various types of dependent (e.g. many languages have more than one contrasting type of dependent clause construction, all other dimensions being held constant; "co-ordinate" and "subordinate" are often useful terms in such cases.)

f. ...

(Including a dimension in the above list is not meant to imply that for some—or even most—languages that dimension will not turn out to be a contrastive dimension on some other level instead. See M. Lawrence's paper and my "Comments on Thomas' Proposed Model" in this volume.)

Approaching the topic of clauses in terms of intersecting but (at least partially) independent dimensions is useful for description as well as for analysis. For example, one can often both discover and present the relevant patterned relationships among clauses without troubling oneself over the question—too often decided arbitrarily—of which clause "types" are contrastive (see Huddleston, 1971).

5. CONTRAST AND VARIATION

As just mentioned, and as often experienced by "tagmemicists in good standing" (to borrow Austin Hale's phrase), the applicability of the whole notion of emically contrastive units, as used in phonology, to clause analysis often appears less helpful than onerous.

Hypothesis 1: While native speakers do have testable intuitions about whether most phones in their language do or do not represent contrastive units (e.g. different phonemes), they do not have similar intuitions about most pairs of clauses in their language.

Question: If one accepts Hypothesis 1, can one be called a "tagmemicist"? Can one accept Hypothesis 1 and still consistently affirm the doctrine that all linguistic units are well-defined in terms of contrast, variation and distribution?

Hypothesis 2: The set of well-formed (grammatical) clauses in a language can be described in a descriptively adequate fashion (i.e.

accounting for the observed speech data and for native speakers' intuitions) without deciding, for every pair of clause "types" described, whether they are or are not "emically contrastive". In fact, if Hypothesis 1 is true, then a description that makes such a decision for all such pairs is less adequate than one that does not, in that it represents as native intuitions notions that are not in fact native intuitions.

6. BIBLIOGRAPHICAL NOTES

On the typical communicative functions of clauses, phrases and other levels of grammatical units, see G.L. Huttar, 1973, On Distinguishing Clause and Sentence , *Linguistics* 105, pp. 69-82. Compare also the definitions of deep and surface phrase and clause in David Thomas, 1975, *Notes and Queries on Language Analysis*, (Language Data, Asian-Pacific Series, 10, Huntington Beach: S.I.L.) Appendix 4, A Proposed Model of Language, pp. 113-118 (also pp. 7-15 in this volume). Thomas's deep phrase differs from my predicates and arguments in that it includes the function of description as well as identification. This difference is logically bound to the difference between his deep clause, which refers to actions but not to states, and my proposition, which refers to all manner of predications, be they events, processes, states, or actions. In the same volume, in *Notes and Queries on Language Analysis*, Section 2, pp. 81-86, D.G. Frantz discusses the typical communicative functions of various moods.

Shirley Lyon, 1967, Tlahuitoltepec Mixe Clause Structure , *IJAL* 33.1, pp. 25-33, is an excellent example of a description of a system of clause types organized in terms of intersecting dimensions. Although the author does posit contrastive relationships among all the clause types described, the first part of the article reveals the dimensional relationships among them without reference to contrastive status—and, perhaps for that reason, much more clearly. Similarly, W.R. Merrifield and B.J. Stoudt, 1967, Molinos Mixtec Clause Structure , *Linguistics* 32, pp. 58-78, describes a basic set of clause types in terms of two dimensions, then describes other clause types by transformations performed on the basic types without positing contrastive status for the clauses thus derived.

For other etic dimensions of clauses, see R.E. Longacre, 1976, *An Anatomy of Speech Notions*, de Ridder Press.

The reference to Grimes in 3. is to Joseph E. Grimes, 1972, Outlines and Overlays, *Language* 48.3, pp. 513-24; and to Grimes, 1972, Chapter 4 of *The Thread of Discourse*, The Hague: Mouton. The reference to Hale in 4.a is to Austin Hale, 1973, Toward the Systematization of Display Grammar , in Austin Hale, ed., *Clause Sentence and Discourse Patterns in Selected Languages of Nepal*, Part I, General Approach (Norman, Oklahoma: S.I.L.), pp. 1-37.

SENTENCE COMPONENTS

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Summary

I. SEMANTIC STRUCTURES (deep structure)

A. Locution Types (proposition types)

1. Nuclear Types: statement, introduction, temporal sequence, covarying, conditional, purposeful, deductive

2. Compounding: contrastive, equivalent, alternative, additive

3. Peripheral Elements: time, location

B. Modal Types

1. Illocution Types: declarative, interrogative, imperative, social, self-expression

2. Mood Types: pleasure, surprise, admiration, etc.

3. Reality Types: factual, contrafactual, hypothetical, uncertain

C. Semantic Prosodies: time movement, information flow, reference structure, assertion structure, topic structure

D. Presupposition: encyclopedia, structural presuppositions, contraexpectancies

II. SURFACE STRUCTURES

A. Nuclear Forms: simple, relative embedding, conjunctive, participial, nominalizing embedding, infinitivizing, adjectivalizing embedding, appositive embedding, subordinating, juxtaposed, final echo

B. Sentence Peripheral Slots: adverbials, vocatives, etc.

C. Prosodic Morphemes: intonation, stress

D. Grammatical Completeness

III. PHONOLOGICAL CARRIER STRUCTURES

A. Phonological Groupings (hierarchy)

B. Phonological Completeness: continuity, speaker shift

C. Phonological Unity: speakers, voice qualities

I. SEMANTIC STRUCTURES

A. Locution Types (propositional content)

1. Nuclear Sentence Types (distinctively sentential relationships). The formulas do not imply necessary clause order.

a. Statement. Contains no structural implications for further sentence-level slots.

Formula: Statement

Abe went home.
Will Abe give John a book for his teacher?

b. Introduction. In its simplest forms it seems to be most commonly found at the beginning of a paragraph or discourse.

Formula: Introduction — Predication

There was a man named Bill; he lived in London.
He gave his father ten cents; the ten cents was what he had earned.

c. Temporal Sequence. It is quite possible that this should not be considered a nuclear type, as it apparently can be accounted for by additive compounding (IA2d) of a simple nucleus (IA1a) plus sequential time movement (IC1). (Cf. Litteral in this volume.) Sentences of this type have solely temporal sequence without logical or causative relationships.

Formula: Prior Event — Subsequent Event^{n}

Charlie went first to the bank, then he went to the grocery.
Charlie, go to the bank before going to the grocery; then after that go to the hardware shop!

d. Covarying.

Formula: Free Variable — Conditioned Variable

The covariance may be either static or varying:

As high as the heavens are above the earth, so great is his mercy toward us. (static)
To the degree that the water level rises or falls, the valve opens and closes. (varying)

And the covariance may be a covariance of simple degree, quality, location, or time:

The harder Don ran, the faster his heart beat.
As goes Maine, so goes the country.
The place where they make a field, that's also where they will live.
The day of a feast will be the day for the marraige.

e. Conditional (Result). A conditional sentence is generally involuntary and tends to be intransitive or passive.

Formula: Condition—Result

In English when the Condition is known because, so, or when are used; when the Condition is unknown if is used.

Because Ernest goes to town he gets shot at.
If Ernest goes to town he will get shot at.
Whenever Ernest goes to town he gets shot at.

f. Purposeful (Causal, Reason). A Purposeful sentence is characterized by a purposeful sequence of actions. The Purpose clause is generally the negation or the increasing of the situation in the Cause clause. Elliptical Purposeful sentences often have the same form as Conditional sentences.

Formula: Previous State (Cause) — Correcting Event (Result) — Expected State (Purpose)

Frank was sick, so he went to a doctor in order to be cured.
Because Frank received a lot of money, he invested it so that it might increase.

g. Deductive.

Formula: General Grounds (Major Premise) — Specific Grounds (Minor Premise) — Deduction (Conclusion)

All men are mortal, and George is a man, so George is mortal.
George is pale, and pale people are usually sick, so George is probably sick.

Elliptical Deductive sentences often take the form of Conditional sentences.

If George is pale he is probably sick.

2. Compounding Types (may be found on all levels of language structure). Theoretically any slot in a nuclear formula may take any of the four types of compounding.

a. Contrastive (Adversative). Usually marked in English with though or but.

Since Frank received a lot of money, though John didn't, Frank invested it...
Abe went, but John stayed home.

The two contrasting clauses must contrast in both subject and predicate. Thus a clause Pa may be contrasted with Qb, Q(U-a), $\bar{P}$b, $\bar{P}$(U-a), P"b, or P"(U-a).

Abe went, but everyone else stayed home.
Abe went, but John didn't.
Abe went, but no one else did.

Abe went, but John tried to escape.
Abe went, but everyone else tried to escape.

b. Equivalent (Paraphrase). The equivalence may be strict or loose, varying from identical repetition to pronominalized repetition, synonyms, negated antonyms, generic—specific, statement—specification, or loose paraphrase. In all of these, though the form changes, the situation being described remains the same.

Abe ran, yes he ran.
Abe ran, he raced.
Abe ran, he didn't just walk.
Abe was sick, he had malaria.
Abe was hit, he was hit by shrapnel.
Abe cooked the meal; that is, he boiled the water and burned the toast.

c. Alternative. Alternation may be either exclusive or inclusive, obligatory or optional, and alternative predicates or alternative participants. This gives us the following four types (for a simple binary alternative), which again may again have alternating predicates or participants:

P or Q	P or Q or both
P or Q or neither	P or Q or both or neither

Either Abe will go or John will go.
Abe may go to town, or he may fix his tractor, or he may milk the cows, or he may do all of those things.
Should I put on a tie, or should I go as I am?

d. Additive (Coordinate). In additive compounding usually only the subject or the predicate contrast, not both.

Abe went and found he liked it.
John put his hand in his pocket and felt for the key.

3. Peripheral Elements.

a. Time Setting.

Punctiliar: on, tomorrow, 2 days before Christmas

Linear: during, within, while..., during the time that...

From (ablative): since, after

To (dative): until, before

Elapsed: for 4 hours (should this be considered verb phrase rather than sentence time?)

Last March Abe went to town.
Nowadays, if Ernest goes to town one day he gets shot at the next. (Note the sentence time in contrast with the two clause times.)

b. Location Setting. All types can be linear or punctiliar.

General: everywhere, nowhere, somewhere

Internal: in, inside, within, throughout, somewhere in, everywhere in

External: outside, outside of, everywhere except

Proximity: at, near, on, along, all along

In Ukarumpa Charlie went first to the cashier, then he went to the store.
In Kentucky Ernest gets shot at in town but is safe in the countryside. (Note the sentence location in contrast with the two clause locations.)

B. Modal Types (relationships between the speaker, hearer, and the assumed real world)

1. Illocution Types (3 major, at least 2 minor)

a. Declarative.

Degrees of assurance, certain to uncertain, regarding the sentential relation as a whole.

If Ernest smokes he'll get sick.
If Ernest smokes he'll get sick for sure.
If Ernest smokes he may or may not get sick.

Sources of knowledge: general knowledge, first-hand, or second-hand.

Everyone knows that if Ernest smokes he'll get sick.
I think that if Ernest smokes he'll get sick.
It is said that if Ernest smokes he'll get sick.

b. Interrogative.

Truth value (polar, yes/no) questions may presume the answer in various degrees.

Didn't Alex go home?
Did Alex really go home?
Alex didn't go home, did he?
How certain is it that Alex went home?

Content questions may ask for tagmemes from the sentence, clause, or phrase level.

Why did Alex go home? (asking for Purpose)
What did Frank do to get cured? (Result)
Who went to tha park? (Actor)
Whose car is that? (Possessor)
How many homers did he hit? (Quantity)

c. Imperative.

Degrees of compulsion, strong to mild.

Abe, milk the cows!
Abe, please milk the cows.
Abe, it would be nice if you would milk the cows.

Sources of compulsion: 1st, 2nd, 3rd person, general

Please come.
It is necessary for your own sake that you come.
The family wants you to come.
It is imperative that you come.

Objects of compulsion: 1st, 2nd, 3rd person

Let's go.
Please go.
He must go.

d. Social. Includes greetings, responses, conversation maintainers, farewells, etc.

Good morning.
Uh huh.
Y'all come back now, hear.

e. Self-expression.

Ouch!
Well, who would have thought it!

2. Mood Types. There are presumably several more than the following three types.

a. Pleasure.

Degrees of pleasure, from pleasing to displeasing.

I'm happy John will go to town.
It's too bad John will go to town.

Experiencers of pleasure: general, 1st, 2nd, 3rd person.

It's good that John went to town.
I'm delighted John went to town.
You will be pleased to know that John went to town.
Bill will be happy that John went to town.

Objects of pleasure: action, causer and action, actor and action.

I'm glad John went to town.
I'm angry with Bill over John's going to town.
I'm pleased with John for going to town.

b. Surprise.

Degrees of surprise, from unexpected to normal.

Experiencers of surprise: general, 1st, 2nd, 3rd person.

Objects of surprise: action, causer and action, actor and action.

You mean to say she ran away!
I hadn't quite thought she would run away!.
It was to be expected that she would run away.
Bill was surprised at her for running away.

c. Admiration.

Degrees of admiration, from pride to shame.

Experiencers of admiration: general, 1st, 2nd, 3rd person.

Objects of admiration: action, causer and action, actor and action.

I'm proud that he won the prize.
I admire him for winning the prize.
His mother was ashamed of his winning the prize.

3. Reality Types. A sentence may be factual, contrafactual, hypothetical, or uncertain. This differs from the Assurance parameter of the Declarative illocution in that Assurance measures the certainty of the relationship between the parts of the sentence, while Reality tells us whether or not the events of the sentence actually take place. The following sentences all have certain Assurance but differ in their Reality.

Because Ernest went to town he got shot at.
If Ernest had gone to town he would have been shot at.
If Ernest goes to town he gets shot at.
If Ernest were to go to town he would get shot at.

C. Semantic Prosodies (Staging). Also present at other levels.

1. Time Movement. The progress of time through the sentence may be indicated graphically by lines and dots as in Ballard et al. 1971, by simple subscripts as below here, or by more precise topological indications as in Litteral 1972.

All men are mortal (T_1), and George is a man (T_1), so George too must be mortal (T_1).
Gilbert smokes (T_1), and everyone who smokes (T_{1a}) gets sick (T_{2a}), so Gilbert will get sick (T_2).

2. Information Flow. New and old in the sentence, as distinct from new and old in the discourse. Deduction sentences require that the Conclusion be entirely composed of sententially old information. Purposeful sentences require that the Purpose be largely

composed of old information from the Cause. Other sentence types have fewer requirements on the information flow.

All men (N) are mortal (N), and George (N) is a man (O), so George (O) too must be mortal (O).
If Ernest (N) goes to town (N), he (O) will get shot at.

3. Reference Structure. Some sentence types have specific pronominalization and reference rules. Some rules for the Purposive sentence are:

(i) Cause (C) and Result (R) tend to expect the same surface subject, so a subject of R that is not the subject of C must be named.

(ii) Purpose (P) does not have surface subject expectations, so any participant from R can be the subject of P.

(iii) Only participants from R are pronominalized in P.

(iv) C and P must have the same participants in the same semantic roles, so that determines pronoun reference in P.

John (N_1) wounded Bill (N_2), so Bill (N_2) went to the doctor (N_3) so he (Pr_3) could cure him (Pr_2).
John (N_1) wounded Bill (N_2) so he (Pr_1) went to a doctor (N_3) so the doctor (N_3) could cure Bill (N_2).

4. Assertion Structure (sentential prominence). One or more clauses in a sentence may be asserted (marked in the examples with *). In a Purposeful sentence the Cause cannot be asserted by itself of just with Purpose, but all other combinations can be gotten:

*Frank was sick, *so he went to the doctor so that he could be cured.
Because Frank was sick, *he went to the doctor so that he could be cured.
Because when Frank was sick he went to the doctor, *he got cured.
Because Frank was sick, *he went to the doctor, *and he got cured.
*Frank was sick, *so he went to the doctor, *and he got cured.

Clauses before the assertion are presupposed, asserted clauses are stated, and clauses following the assertion are predicted. Locution and mood assertion differences may be marked lexically, as in the following:

John accused Bill of running away. (asserted locution 'Bill ran away', presupposed mood 'displeasure')
John blamed Bill for running away. (asserted mood, presupposed locution)

5. Topic Structure (theme-rheme). There seems to be a sentence topic structure in contrast with clause topics, but I have done no analysis on it yet.

D. Presupposition.

1. Sentential Encyclopedia. The encyclopedia may contain universally known, culturally known, and contextually known information necessary for the understanding of the sentence. To understand the "Frank was sick..." sentence properly we must have in our encyclopedia the following information:

(i) sick people generally go to doctors (cultural)

(ii) doctors generally make sick people well (universal)

This is sentential information, in contrast with phrase, clause, paragraph and discourse information which must also be known. The speaker expects the hearer to have this in his encyclopedia.

2. Structural Presuppositions. The locution structures presuppose certain time, information, reference, and assertion structures in whole or in part. For discussion of these see IC above.

3. Contraexpectancies. Violation of the encyclopedic or structural expectations, generally marked in English with but, though, nevertheless, or something similar.

Fred received a lot of money, so he invested it, but he didn't get any richer.
Don ran harder but his heart didn't beat any faster.
Though Charlie went to the bank, he didn't then go to the grocery.

II. SURFACE STRUCTURES (meaningful forms)

A. Nuclear Form Types. (English types suggestive only)

a. Simple

Alfred ran downhill.

b. Relative Embedding

Fred, who was rich, invested his money to get richer.

c. Conjunctive

Fred was rich, so he invested his money so that he might become richer.

d. Participial

Being rich, Fred invested his money.

e. Nominalizing Embedding

Fred's wealth led him to invest his money.

f. Infinitivizing

Fred invested his money to get richer.

g. Adjectivalizing Embedding

Rich Fred invested his money.

h. Appositive Embedding

Fred, a rich man, invested his money.

i. Subordinating

Under the influence of his sickness, Frank went to a doctor.

j. Juxtaposed

Frank was sick; he went to a doctor.

k. Final Echo (tag)

Frank was sick, so he went to a doctor, he did.

B. Peripheral Slots.

1. Adverbials. Occur in various positions.

Fortunately Alfred ran downhill.
George is a man, so naturally he is mortal.
Surprisingly Don's heart didn't beat any faster when he ran harder.

2. Vocatives. Semantically a paragraph-level function, but often manifested on the sentence level.

Frank, because you are sick, go to a doctor.
Invest your money, Fred, because you are rich.

C. Prosodic Morphemes Affecting the Sentence.

1. General Intonation Contours. Most languages have several standard contrastive intonation contours, which may be analyzed in terms of levels or of tunes. (Cf. Armstrong & Ward 1926, Pike 1945, Lehiste 1970)

2. Intonational Prominence. Many languages add extra intonational peaks for emphasis (superimposed on the general contour) and dips for de-emphasis. English usually marks a parenthetical comment with a dip. (Cf. Dorothy Thomas 1966.)

3. Stress Placement. The placement of sentential stresses can indicate prominence. (Lehiste 1970)

If Ernest comes home he may *meet his friend.
If Ernest comes home he *may meet his friend.

D. Grammatical Completeness (ellipsis). A sentence may be grammatically intact, or may contain deleted sentence tagmemes or deleted clause tagmemes.

Frank went to the doctor to be cured. (deleted Cause)
Gerald is pale, so he is probably sick. (deleted General Grounds)

III. PHONOLOGICAL CARRIER STRUCTURES (The phonological elements or characteristics which of themselves do not carry meaning but are structurally necessarily present.)

A. Phonological Groupings (hierarchy). Syllables, feet, pause groups, intonational groups, intonational sentences.

///Frank/was sick//so he went/to a doctor//to get cured///

B. Phonological Completeness.

1. Continuity.

Continuous: uttered without a break

Interrupted: uttered with breaks in the middle, either from the speaker voluntarily pausing or from other people interrupting.

Fragmentary: started but not finished.

2. Speaker Shift. Usually a speaker will finish his own sentence, but occasionally another speaker will finish it for him.

C. Phonological Unity.

1. Speakers. A single speaker or several speakers in unison.

2. Voice quality. Quality, volume, pitch, speed.

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SPEECH ACTS AND TRANSLATION

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0. INTRODUCTION

J.L. Austin's work (especially *How to Do Things with Words*, 1962) on various kinds of speech acts has played an important role in the subsequent development of linguistic theory, particularly with regard to semantics. His notion of performatives, for example, has already become a well-worn item in the linguist's stock. At the same time, his distinctions among the acts we perform when we speak have provided the basis of much recent discussion of some major philosophical problems of long standing.

Of the many articles and longer works that have appeared in the last decade applying Austin's insights to problems in the philosophy of language, I wish in this article to consider only one, one that has proven to be especially influential in discussion of these problems by linguists: J.R. Searle's book, *Speech Acts: An Essay in the Philosophy of Language* published in 1969. More particularly, I attempt here to apply to problems in translation theory Searle's four types of speech acts as outlined in his second chapter, especially in section 2.1. The question I want to raise, and begin to answer, is, "What kinds of speech acts should we attempt to preserve in translation?"

1. FOUR KINDS OF SPEECH ACTS

Searle, developing Austin's original suggestions, distinguishes four kinds of speech acts performed when a speaker utters a sentence:

a. In uttering particular words, morphemes, phones, etc., one is performing UTTERANCE ACTS.

b. In referring to things and predicating things about them, one is performing PROPOSITIONAL ACTS.

c. In "stating, questioning, commanding, promising, etc." (24), for example, one is performing ILLOCUTIONARY ACTS. (Numbers in parentheses, as (24), refer to page numbers in Searle, 1969.)

d. In persuading, convincing, scaring, enlightening, edifying, and inspiring one's hearer(s), for example, one is performing PERLOCUTIONARY ACTS.

The notion of utterance act is the only one of these that most linguistic field workers of my acquaintance find it easy to grasp. To describe someone's utterance in terms of utterance acts is to describe it in terms of the phones, phonemes, intonational contours, morphemes, grammatical classes, clause types, or whatever other phonological or grammatical units one chooses to recognize in the utterance. (Searle himself points out (25) that utterance acts could, if one wished, be divided into phonetic, phonemic, morphemic, etc. acts.)

The notion of propositional act is a bit more difficult. Propositional acts include acts of referring (e.g. I refer to Sam when I say "Sam is tall.") and acts of predicating (e.g. in "Sam is tall." I predicate of Sam that he is tall, or, as philosophers also put it sometimes, I predicate tallness of Sam). But even so exemplified, the notion of predicating is not obvious, and is often confused with the notion of asserting. As a matter of fact, Searle points out (26) that the traditional use of "predication" in philosophy is more closely tied to assertion than the way he uses the term. So for our purposes here I think it is best not to trouble ourselves over referring and predicating, but rather to try to grasp the global notion of which they are parts, namely, propositional acts.

And to understand the idea of propositional acts, the best approach is by example—in the following set of sentences of Searle's (22), the same propositional acts are performed:

(1) Sam smokes habitually.

(2) Does Sam smoke habitually?

(3) Sam, smoke habitually!

(4) Would that Sam smoked habitually.

Note first of all that the propositional acts are the same in (1) - (4) even though an assertion is made (normally) only in uttering (1). As Searle puts it (29):

> *A proposition is to be sharply distinguished from an assertion or statement of it*...Stating and asserting are acts, but propositions are not acts. A proposition is what is asserted in the act of asserting, what is stated in the act of stating.

(We could continue the list: a proposition is what is questioned in the act of questioning, what is commanded in the act of commanding, etc.) But let Searle continue:

> The same point in a different way: an assertion is a (very special kind of) commitment to the truth of a proposition. The expression of a proposition is a propositional act...

Note secondly that one cannot perform the propositional act of expressing a proposition without at the same time doing something else like stating, questioning, etc.—in other words, without performing an illocutionary act. I suspect that this fact accounts for the difficulty some have in keeping distinct the two notions of propositional act and illocutionary act.

As for illocutionary acts, Searle has not defined them for us, but merely exemplified them (see c. above). (Perhaps in some of his other writings to which I do not have access he does provide a definition.) Besides the examples already given, he mentions as illocutionary acts arguing, warning, requesting, informing (25); apologizing (30); greeting (49); thanking (for), advising, congratulating (67). (See Austin, 1962 for a more extensive list.)

Since the notion of "illocutionary force" is closely related to that of illocutionary act, the following discussion of the former should give us some further understanding of the latter (30):

> In the syntactical structure of the sentence...the illocutionary force indicator shows how the proposition is to be taken, or to put it another way, what illocutionary force the utterance is to have; that is, what illocutionary act the speaker is performing in the utterance of that sentence. Illocutionary force indicating devices in English include at least: word order, stress, intonation contour, punctuation, the mood of the verb, and the so-called performative verbs. I may indicate the kind of illocutionary act I am performing by beginning the sentence with "I apologize", "I warn", "I state", etc.

The notion of illocutionary act is explained in another way, with some additional examples, in Searle, 1975 (Section 2.) and in Fraser, 1973 (p. 287).

We are a bit better off with the notion of perlocutionary acts, although again Searle exemplifies rather than defines. (It is probably for this reason that it is not always clear which acts Searle would consider to be illocutionary, and which perlocutionary.) But he does provide the following explanation (25):

> Correlated with the notion of illocutionary acts is the notion of the consequences or *effects* such acts have on the actions, thoughts, or beliefs, etc. of hearers. For example, by arguing I may *persuade* or *convince* someone, by warning him I may *scare* or *alarm* him, by making a request I may *get him to do something*, by informing him I may *convince him (enlighten, edify, inspire him, get him to realize)*. The italicized expressions above denote perlocutionary acts.

To bring about an effect on one's hearer by virtue of performing an illocutionary act, then, is to perform a perlocutionary act.

Why is it necessary, or even likely to be useful, to complicate matters by distinguishing these four kinds of speech acts? This question can be answered much the same way as the question, "why complicate things by making such distinctions as phonology vs. grammar, or form vs. meaning?" Such distinctions are made because the things being distinguished *do not vary togeather*; a specified change in one does not always correspond to a constant specified change in the other. Put in slightly more esoteric terms, there is not a one-to-one mapping between the two; they are not "isomorphic."

So for speech acts, setting up four types of them constitutes a claim that any two of these types are at least partly independent. For example, in saying, "Sue loves Joe." and "Joe loves Sue." I may be performing the same phonetic acts (ignoring minor variations), but I am certainly not performing the same propositional acts. And as we have already seen in sentences (1) - (4), one can perform the same propositional acts without performing the same illocutionary acts.

But the partial mutual independence of illocutionary and perlocutionary acts is also important. One example should make this independence clear. I can utter the sentence "Mountain climbing is dangerous." and thereby perform the illocutionary act of asserting. But on one occasion the perlocutionary act I thereby perform may be to frighten my hearer, and on another occasion it may be to challenge, or simply inform, or induce contempt toward my unwillingness to incur risks. And I may even intend to frighten my hearer, yet only succeed in whetting his appetite for a climb.

In other words, even if we know what illocutionary act a speaker is performing in uttering something, and even if we know what effect he was trying to achieve (i.e. what perlocutionary act he was trying to perform), that is still not enough to tell us what perlocutionary act he did in fact perform. For that depends partly on the hearer.

2. TRANSLATING SPEECH ACTS

With this introduction to what Searle has in mind by his four types of speech acts, we can now ask, "Which types of speech acts should we attempt to preserve in translation?" The answer, of course, depends on our purposes in translating.

Should we preserve utterance acts in translation? I believe the only time anyone even comes close to preserving phonetic or phonemic acts is when he transliterates a stretch of speech from the source language to the receptor language. (For discussion of transliteration and other possible ways of preserving phonological and graphological acts in translation, see Catford, 1965:56-70.)

Utterance acts as producing particular morphemes and instances of particular grammatical units (e.g. animate noun, interrogative clause, conditional sentence)—i.e. Searle's morphemic acts and other grammatical acts—can be preserved in translation. The result is what Beekman and Callow (1974:21) call a "highly literal" translation, such as an interlinear translation, quite appropriate for some purposes. (See further Catford, 1965:71-72.) But for translation intended to communicate to an audience with no knowledge of the source language, we may safely conclude: "No, we should not strive to preserve utterance acts."

To introduce our discussion of the other three types of speech acts, I begin with some quotations from translation theorists:

(5) The expression, *transfers the meaning*, means that the translation conveys to the reader or hearer the information that the original conveyed to its readers or hearers. (Beekman and Callow, 1974:33)

(6) The translator...has basically two matters to resolve regarding each question:

(1) Is this a real or rhetorical question?

(2) What is the purpose served by this question?

(op. cit., p. 230)

(7) A translation which attempts to produce a dynamic rather than a formal equivalence is based upon "the principle of equivalent effect"...In such a translation one is not so concerned with matching the receptor-language message with the source-language message, but with the dynamic relationship..., that the relationship between receptor and message should be substantially the same as that which existed between the original receptors and the message. (Nida, 1964:159)

(8) What one must determine is the response of the receptor to the translated message. This response must then be compared with the way in which the original receptors presumably reacted to the message when it was given in its original setting. (Nida and Taber, 1969:1)

As I understand (5), the emphasis seems to be on the preservation of propositional acts in translation (if by "information" they mean "propositional content"). In (6), interpreted in the light of the discussion on pages 230-238, the concern is with illocutionary acts. And in (7) and (8), the insistence on reproducing the same kind of response as the original message elicited in its audience is an insistence on preserving perlocutionary acts.

But if perlocutionary acts are determined in part by the audience, not wholly by the speaker/writer, how can we find out what perlocutionary acts the writer performed if our only information is what he wrote? For example, we simply do not know how Matthew's readers reacted to his Gospel. We therefore do not know what perlocutionary acts Matthew performed in writing it or any part of it. So how can we even attempt to preserve these unknown acts?

We turn then to the two remaining kinds of speech acts, propositional and illocutionary. Let us consider the following example from Matthew 3.13: "Then Jesus came from Galilee to the Jordan to John." The propositional acts performed by Matthew in writing this sentence (more exactly, the Greek from which it is translated) include the following:

referring to Jesus, Galilee, the Jordan River and John the Baptist;

predicating of Jesus that he came from Galilee to John the Baptist at the Jordan River.

Besides these propositional acts, Matthew was also performing the illocutionary act of asserting the proposition that Jesus came from Galilee to John the Baptist at the Jordan River.

This analysis of a very simple example illustrates an important point: the dependence of propositional acts on illocutionary acts. As Searle puts it (29):

> propositional acts cannot occur alone. One cannot just express a proposition while doing nothing else and have thereby performed a complete speech act....When a proposition is expressed it is always expressed in the performance of an illocutionary act.

And later (123):

> Predication is...an abstraction, but it is not a separate act. It is a slice from the total illocutionary act....If we remember the senses in which predication (and hence the propositional act) is an abstraction from the total illocutionary act, there is no harm in referring to it as "the speech act of predication". What we are speaking of, though, is that portion of the illocutionary act which determines the content applied to the object referred to by the subject expression, leaving aside the illocutionary mode in which that content is applied.

Note further that while we have identified Matthew's illocutionary act as simply asserting, it is useful to ask why he made the assertion. Put another way, what was he trying to do to his readers by virtue of writing this sentence? What perlocutionary acts was he trying to perform (as opposed to what perlocutionary acts he did perform, about which we can at best speculate)? Since the illocutionary act of

asserting is normally used to inform or to remind, and since we have no information either from the entire Gospel of Matthew, our knowledge of Greek, or our knowledge of the culture of Matthew and his readers to indicate that Matthew's usage here is not normal, we can assume that he was intending to either inform or remind his readers that Jesus came from Galilee to John the Baptist at the Jordan River. (The choice between reminding and informing depends on whether Matthew though his readers were already aware of Jesus' coming, etc.

But have we materially advanced our knowledge of Matthew's speech acts by asking what were his intended perlocutionary acts? We determined his intended perlocutionary acts strictly on the basis of his illocutionary acts plus an assumption that asserting is done to inform or remind—as assumption for languages universally, not for Matthew's language specifically. So answering "What were his illocutionary acts?" turns out to be equivalent, given a set of such universal assumptions, to answering, "What were his intended perlocutionary acts?"

From this example, then, we can propose the following answer to our major question:

(9) In translation for effective communication we are primarily concerned to preserve (a) the propositional acts and (b) the illocutionary acts (equivalently, the intended perlocutionary acts) of the original speaker/writer.

Note that the intended perlocutionary acts of the writer are not necessarily his expected ones. In John 20.30,31 we are told that the writer's intended perlocutionary act for his whole work was the inducing of belief. But that fact does not entail that he expected every reader of his Gospel to respond by believing.

I now want to consider two more areas—embedded speech acts and figurative speech—to see whether either will suggest any modification of (9) above.

3. EMBEDDED SPEECH ACTS

In the example just discussed from Matthew 3.13 we were dealing only with the speech acts of Matthew. But when a writer reports or otherwise mentions someone's speech acts, then we have speech acts embedded within the writer's speech acts. More specifically, the writer's propositional acts include the predicating of someone that he performed some speech acts. For example, in 1.20 Matthew asserts that an angel said to Joseph, "Joseph, son of David, do not fear to take Mary..." Here we have not only Matthew's speech acts, but also those of the angel—or, more exactly, the speech acts of the angel as asserted by Matthew. In this case, we recognize the angel's illocutionary acts of addressing in "Joseph, son of David," of commanding in "do not fear..." and in "you shall call his name Jesus," and of

asserting (more specifically, explaining and predicting) in "that which is conceived in her is of the Holy Spirit," "she will bear a son," and "he will save his people from their sins." From verse 24, "Joseph...did as the angel...commanded him," we can infer that the angel performed the perlocutionary act of getting Joseph to do something. And certainly this perlocutionary act must be preserved in faithful translation.

Does this mean, then, that we must strive to preserve perlocutionary acts in translation after all? No, for the perlocutionary act of the angel is embedded in Matthew's speech acts, and forms a part of Matthew's propositional and illocutionary acts. If we preserve the writer's propositional and illocutionary acts as (9) requires, then all of the angel's speech acts, to the extent that they are reported by Matthew, are thereby included.

A similar example is found in Acts 2, where in verse 37 the writer asserts how the crowd responded to Peter's words—i.e. asserts what perlocutionary acts Peter performed in verses 14-36. Again, in preserving the writer's propositional and illocutionary acts, we cover Peter's perlocutionary acts as reported by the writer.

The principle of embedded speech acts can be extended indefinitely. In Luke 16.27-28 we have Luke *asserting* that

Jesus *asserted* that
the rich man *requested* that
Lazarus *warn* his brothers.

4. FIGURATIVE SPEECH

Consider Matthew 7.18: "A sound tree cannot bear evil fruit, nor can a bad tree bear good fruit." Analyzing not Matthew's speech acts, but Jesus' speech acts as reported by Matthew, we can reasonably make the following analysis:

propositional acts: referring to sound trees, bad trees, evil fruit and good fruit; predicating of sound trees that they cannot bear evil fruit, and of bad trees that they cannot bear good fruit;

illocutionary act: asserting the propositions just mentioned, and also asserting that people cannot produce behaviour inconsistent with their character.

Presumably effective translation would preserve, explicitly or implicitly, all the propositional and illocutionary acts given in this analysis. The translator would use expressions for referring to sound and bad trees, good and evil fruit, and for asserting the propositions about them. He would further take pains to ensure that the expressions used in the receptor language, either for this sentence alone or taken in the broader context of verses 15-20, could be normally used to assert that people cannot produce behaviour inconsistent with their

character. By this analysis of the translator's task, then (9) stands as given.

But what if the rules governing the use of figurative speech in the receptor language preclude tha possibility of asserting something about people by referring to trees and fruit? Or what if trees and fruit are unknown to the speakers of the language? Or, what is more likely, what if grapes, thorns, figs, and thistles are unknown, and we wish to translate verse 16b: "Are grapes gathered from thorns, or figs from thistles?"

An analysis of this sentence parallel to that of verse 18 yields the following:

propositional acts: referring to grapes, thorns, figs and thistles; predicating of grapes the impossibility of gathering them from thorns, and predicating of figs the impossibility of gathering them from thistles;

illocutionary acts: asserting the propositions just mentioned, and also asserting that one cannot encounter in people of one sort behaviour that belongs to people of another sort.

Let us assume that for the language in question, it seems best to translate verse 16b retaining the general image of plants and their fruit, but with no specific reference to the plants mentioned in Matthew or to local "cultural equivalents": "As everyone knows, you can't go to one kind of plant and find on it the fruit which belongs to some other kind of plant." Or for another language, let us assume we must delete the image: "You know that you can't expect anyone to behave in a way contrary to what he is like inside." (These two translations illustrate approaches 1 and 7, respectively, in Beekman and Callow, 1974:145-149.)

In neither of these translations have we preserved the propositional acts of referring to grapes, thorns, etc. In the second one, we have not even preserved the illocutionary act of asserting a proposition about plants. Either these translations are unacceptable, or our analysis of Jesus' speech acts is incorrect, or (9) must be modified.

In light of the discussion in Beekman and Callow, 1974:137-150, I will assume that the suggested translations are in fact acceptable, given certain facts about the receptor language and culture. Can we analyze the speech acts in some other reasonable way, then, or ought we to modify the claim in (9)?

Since Searle explicitly limits his discussion of speech acts to literal uses of language (19-21), his framework offers little guidance for analyzing figurative uses. Consider the following alternative analysis for verse 16b:

propositional acts: referring to people, their character, and their behaviour, and predicating of people that they cannot produce behaviour inconsistent with their character;

illocutionary acts: asserting the above proposition.
By this analysis, any mention of grapes, thorns, etc. would have to be on the level of utterance acts.

The alternative analysis is defective by virtue of its relegating the meaning of the Greek morphemes for "grape" etc. to the level of utterance acts along with the morphemes themselves as grammatical units and the phoneme sequences representing them. We are then left without any principled basis for preserving historical fidelity (as in Beekman and Callow, 1974:35ff.). We also have no way to explain the fact that hearers of Jesus' words had first to react to the literal meaning of "grape" etc. before comprehending that he was making a point about people, not plants.

The former analysis avoids these problems, but has a problem of its own not yet mentioned. That is, it includes an illocutionary act ("asserting that one cannot encounter in people of one sort behaviour that belongs to people of another sort") whose propositional content is not at all reflected in the propositional acts. We can remedy this defect by adding to the propositional acts another set to correspond to that illocutionary act. The resulting analysis follows:

propositional acts:

(a) referring to grapes, thorns, figs, and thistles; predicating of grapes the impossibility of gathering them from thorns; predicating of figs the impossibility of gathering them from thistles;

(b) referring to people, their character, and their behaviour, and predicating of people that they cannot produce behaviour inconsistent with their character;

illocutionary acts:

(a) asserting the propositions in (a) above;

(b) asserting the propositions in (b) above.

While this last analysis may better fit Searle's framework, it in no way solves the problem raised by translation situations where the propositional and illocutionary acts about plants cannot be preserved. I therefore suggest the following modification of claim (9), using "image", "topic", and "point of similarity" in the sense of Beekman and Callow, 1974:137-150. The expression "results in wrong or zero meaning" is also theirs (p. 37).

(10) In translation for effective communication we are primarily concerned to preserve the propositional and illocutionary acts of the original speaker/writer. In cases where preserving the image in the translation of figurative speech results in wrong or zero meaning, the propositional and illocutionary acts involving the image need not be preserved, but the propositional and illocutionary acts involving the topic and the point of similarity must be preserved.

5. ACKNOWLEDGEMENTS

I would like to thank the Papua New Guinea branch of the Summer Institute for hosting, and David Thomas for organizing, the linguistics seminar at which my thoughts on speech acts and translation were developed to the stage reported here. Many participants in the seminar, including Barbara Sayers, Robert Litteral, Michael Ray, and Bruce Waters, contributed valuable ideas which have been incorporated in the above. But I owe a greater debt to my previous correspondence with Bruce Hooley and especially with John Beekman, Bruce Hollenbach and David Thomas.

An intriguing idea developed in some detail by John Beekman (personal communication), and also suggested by David Thomas (personal communication), is the hypothesis that perlocutionary acts are more a function of whole discourses than of the constituents of that discourse. An alternative hypothesis would make explicit the model implicitly followed here, where speech acts of all four sorts are progressively embedded in speech acts of the same sorts at a higher hierarchical level. We could posit an increasing importance for perlocutionary acts as one reaches higher levels, without abandoning the progressive embedding notion implicit in a hierarchical model.

This issue is just one of many that could be profitably pursued at greater length than the above presentation has allowed. Hopefully readers with more experience in translation than I, or with more acquaintance with the literature on translation theory than I, will be able to develop some of these ideas for the sake of effective translation.

6. READING

Besides works mentioned in this paper, other books and articles are listed here that are likely to be useful for anyone interested in pursuing the notion of speech acts. On the other hand, scores of works dealing with questions raised by Austin and Searle are omitted.

Alston, W.P., 1964. *Philosophy of Language*. Englewood Cliffs: Prentice-Hall—especially Chapter 2.

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Beekman, John and John Callow, 1974. *Translating the Word of God.* Grand Rapids: Zondervan Publishing House.

Catford, J.C., 1965. *A Linguistic Theory of Translation: An Essay in Applied Linguistics.* London: Oxford University Press.

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FEATURES OF SEMANTIC PREDICATES

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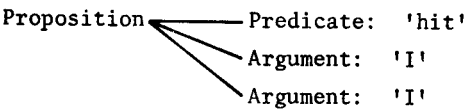
0. INTRODUCTION

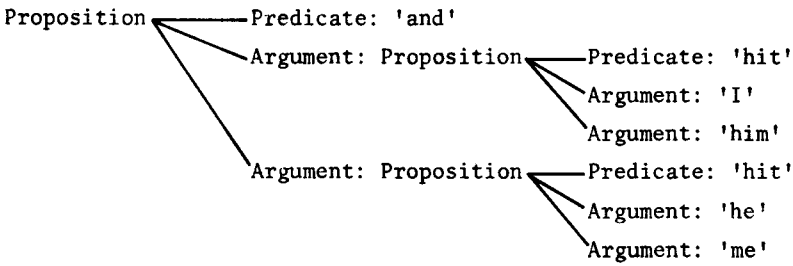
Grimes (1972, 1975) introduced the term rhetorical predicate within a semantic propositional framework to specify those semantic relations that operate beyond the domain of a lexical predicate and its case relations to organize discourse.[1] I (Litteral 1972) applied the concept of rhetorical predicates to the analysis of semantic structure and noted some of the restrictions that apply between the arguments of rhetorical predicates. The purpose of this paper is to provide a simple introduction to propositional structure and Grimes's role, lexical, and rhetorical predicates and to specify possible distinctive features of semantic predicates and some of the restrictions between their arguments. It is hoped that further interest will be generated in the latter topic and that future discussion and research will lead to a more precise specification of the features of semantic predicates, especially rhetorical ones, and of the constraints between their arguments.[2]

1. PROPOSITIONAL STRUCTURE

Propositional structure provides a formal means of making a statement.[3] A statement (proposition) says something (predicate) about things (arguments). The proposition as a whole has a relator (predicate) and one or more things that it relates (arguments). The statement I hit him can be represented propositionally in a simplied manner by:



This basic propositional structure can be extended to display the semantic relations of whole discourses. This is accomplished by making propositions the arguments of predicates in other propositions. Again, using a simplified structure for illustration, we can display the propositions in the sentence I hit him and he hit me as:



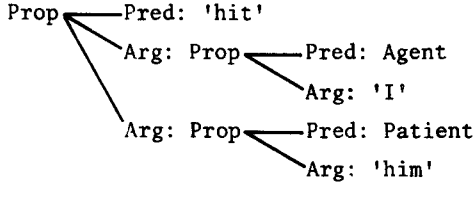
There are three propositions here. One is the proposition that I hit him. Another is the proposition that he hit me. The third proposition states that there is a relation of conjunction and between the first two propositions. This is shown by the first two propositions mentioned being the arguments of the proposition with and as its predicate.

2. TYPES OF PROPOSITIONS

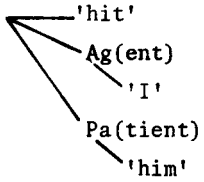
Propositions differ according to the types of predicates that function within them. Grimes (1975:116) lists three types of predicates: ROLE (or CASE), LEXICAL, and RHETORICAL. Role predicates specify the functions such as agent, patient, and goal that items have in relation to events or states. Lexical predicates have propositions with role predicates as their arguments and represent events such as eat and states such as good. Rhetorical predicates relate the semantic content of lexical and role predicates into groups that form the composition of the discourse. Some rhetorical predicate relations are represented in text by forms like and, or, because, and in order to.

The semantic role, or case, is well known on the contemporary linguistic scene.[4] It is generally accepted as specifying the relation of an item to a lexical predicate that is unually manifested as a verb, adjective, or noun. Linguists differ as to the number of roles needed for an adequate description of language. Fillmore (1968a) posited five roles. Grimes (1975) lists fifteen, subdivided according to orientation roles, process roles, and a combination of the two. Hale (1974) has only three roles.

These roles are predicates within a proposition and generally have as their arguments specific items. This is shown by a fuller propositional description of the example I hit him:



As this full form is difficult to read, it is usually abbreviated to the following form with the specification of proposition, predicate, and argument deleted:



3. FEATURES OF ROLES

Grimes (1975) notes that some roles are complimentary and can be grouped together in their functions. This indicates that some roles share features in common while contrasting in other features. Since roles represent a limited semantic domain and limited domains of contrast are amenable to distinctive feature analysis, one is tempted to seek a set of distinctive features for roles. Hopefully such a set would help explain why some linguists' intuitions and analysis cause them to combine roles that others have separated.

I would like to suggest the following set of distinctive features for analyzing semantic roles. The set proposed here is tentative and is presented primarily for the purpose of involving others in this discussion so that a more adequate set of features can be found. The four features are P(rior time), S(ubsequent time), I(nvolved), and A(ffected). +P indicates that the item as the argument of that role is relevant to the event prior to the event, e.g. it was the initiator of the event or was the place where the event started. +S indicates that the item concerned has a relevance in relation to the event after the event, e.g. a bottle is broken after an event of breaking or the place where an item is located after an event. -P, -S would indicate time simultaneous with the event or state. +I specifies that the item concerned is involved in the event or state of the lexical predicate dominating it, e.g. an axe is involved in cutting a tree as is the one cutting the tree and the tree. -I indicates items not involved in an event or state such as locatives. The feature A(ffected) distinguishes items that are affected by the event or state from those that are not, e.g. in cutting a tree down the tree is +A, the axe -A. Chart 1 gives a distinctive feature analysis of the roles listed by Grimes (1975:134).

	P	S	I	A
Agent	+	-	+	-
Instrument	-	-	+	-
Force	-	-	+	-
Vehicle	-	-	+	-
Object	-	-	+	+
Source	+	-	-	-
Goal	-	+	-	-
Range	-	-	-	-
Patient	-	-	+	+
Former	+	-	+	+
Latter	-	+	+	+
Material	+	-	+	+
Result	-	+	+	+
Referent	-	-	+	-
Benefactive	+	+	-	+

Chart 1. Distinctive Features of Roles

On the basis of identical features, the fifteen cases above can be collapsed into nine: (1) Goal, (2) Latter, Result, (3) Object, Patient, (4) Instrument, Force, Vehicle, Referent, (5) Range, (6) Agent, (7) Former, Material, (8) Source, (9) Benefactive. To this I would add Receptor which is -P, +S, +I, -A which distinguishes indirect objects which are involved in an action (+I) from goals which are not (-I). With this analysis the difference between roles that were formerly separate, such as Object and Patient, are seen as due to the meaning of the lexical predicate and not that of the roles. That is, the difference between Object in He rolled the ball and Patient in He cut the pig is the meaning of the verbs roll and cut. The relation of the ball and the pig to their respective verbs are essentially the same: both are involved during the event specified in the verb and both are affected by the event. This analysis avoids the problem of having Object and Patient occurring with mutually exclusive classes of predicates. The same applies to Force and Instrument which are mutually exclusive, Force occurring without an Agent and Instrument with an Agent or inherent Agent.

Three problem roles remain: Vehicle, Referent, and Benefactive. Referent and Vehicle are analyzed here as being identical in features with Instrument and Force. In many Papua New Guinea languages Vehicle

and Instrument could not occur in the same clause as they can in the English sentence He carried the meat with a rope (I) on his back (V). It may be that in this case Vehicle is better analyzed as Range as specifying the location of the action in which back is not involved but is rather specifying the location on the involved item, the Agent. In some Papua New Guinea lnaguages there would be no problem as it would be expressed as He put the meat on his back and went.

Referent generally does not occur in the same predicate with an Instrument. However, one may find the strange sounding sentence They discussed politics with their typewriters in which Referent and Instrument both occur. It may be that typewriters here is functioning as manner rather than Instrument.

Benefactive is a problem in that it is difficult to know which distinctive features apply to it. It is in a separate system from all the others. The reasoning for the analysis here is that an Agent has the benefactor in mind when he performs his action (+P), it is intended that the benefactor will be affected after the event (+S), and the be benefactor is not directly involved in the action (-I) but receives benefit from it (+A).

4. FEATURES OF LEXICAL PREDICATES

Another type of proposition has lexical predicates with semantic roles as their arguments. Lexical predicates not only provide part of the meaning of the total proposition such as hit in I hit him but they also determine the number and types of arguments that they dominate.

Lexical predicates may be subcategorized by their inherent features. Chafe (1970) gives the three contrastive semantic features of lexical predicates as state, action, and process. States specify a relation involving unlimited time such as good, bad, yellow, or human. Actions specify relations of limited time, or events, that are in contrast to states. Processes specify relations in which an item is changed such as burn in The tree burned. A lexical predicate may also be both an action and a process in which one item performs an action that causes a process in another item such as burn in He burned the tree. Chafe notes that a process requires a Patient and an action an Agent.

My attempts to analyze Anggor verbs using the categories of Chafe indicated that they were inadequate to explain the verb classifications. The basic semantic features of lexical predicates needed for analyzing Anggor are: St(ative), C(onsequence), and Sp(atial).[5] Further classification of lexical predicates involves the number and types of semantic roles that they dominate and whether they are punctiliar or durative.

As for the classificatory significance of the semantic features, Stative distinguishes states from events. A state such as He is good

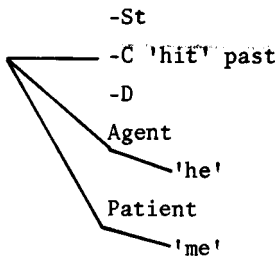
is +St and is distinguished from events such as He went which are -St. The events (-St) must be distinguished as to whether they have a consequence (_C) or no consequence (-C). In +C events the involved items has a different condition or position than it did before the event. For example, when one goes he is in a different position than he was before he went. Likewise, when one gets sick he is in a different condition than he was before the event. In -C events there is no change of position or condition on the part of the involved item such as in He sneezed or He talked. +C events must be specified as to whether they involve a change in space (+Sp) or a change in condition (-Sp). Examples of +Sp lexical predicates are go, throw, and give. Examples of -Sp lexical predicates are cut, die, and build.

Lexical predicates have an inherent aspect that must be specified. The inherent aspect is either stative, durative, or punctiliar. Stative predicates are specified as +St(ative). -St ones are specified as either +D(urative) or -D. +D predicates are events that are viewed by the language as requiring a span of time for their completion such as go, sing, or scrape sago. -D predicates do not require a span of time for their completion, e.g. arrive, fall, or hit. These different inherent aspects are indicated by the modifying aspects that co-occur with them. For example, duration as a modifying aspect can be indicated in English, Tok Pisin, and Anggor by repetition of a durative verb but not stative or punctiliar ones. In English one can say He went and went and went but not *He is good and good and good (stative) or *He arrived and arrived and arrived (punctiliar).

Other categories associated with verbs are not inherent semantic features but are semantic categories related to the discourse context or speech event context. Examples of such non-inherent categories are tense, aspect, and mood.

The number and type of arguments that a lexical predicate requires is not here considered an inherent feature of types of lexical predicates that are specified by distinctive features. Rather these are specifications of specific lexical prediates or restrictions of the inherent features, e.g. +St(ative) entails -P(rior), -S(ubsequent), +I(nvolved) and +A(ffected), or in other words, a Patient. As to the restrictions on arguments of lexical predicates, it is beyond the scope of this paper to discuss this topic. Discussions of this topic are to be found in Fillmore (1968b), Chafe (1970), and Grimes(1975: 162ff).

The lexical predicate is displayed with its inherent features, the lexical item itself with its obligatory arguments, and the non-inherent specifications such as aspect. The sentence He hit me is represented in a simplified form as:



This indicates that the proposition has a lexical predicate that is an event (-St), that the event does not involve a consequence (-C), and that the event is punctiliar (-D). The specific lexical predicate is hit and its relation to the time of the event is the past.

5. TIME INDEXING

Just as each semantic role has a time specification as to its temporal relation to the lexical predicate, each lexical proposition has a time index that specifies its temporal relationship to other lexical propositions in the discourse. A theoretical presentation of time indexing is given in Litteral (1972). A simplified presentation is provided here.

In Chart 2 the lettered lines represent the spans of time for specific events. The unlettered line represents a time specified in the discourse when there are no events taking place. The boundaries of these time spans are indicated by points on the time base. The time base is indexed with boundaries indicated by even numbers and intervals by odd numbers.

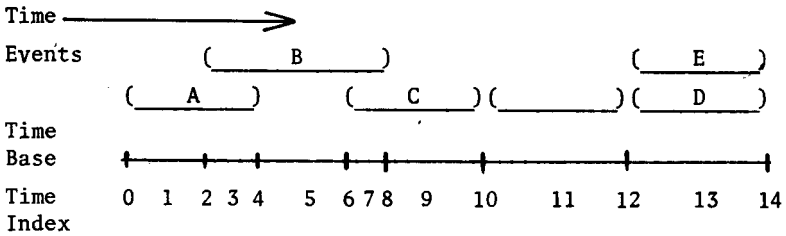


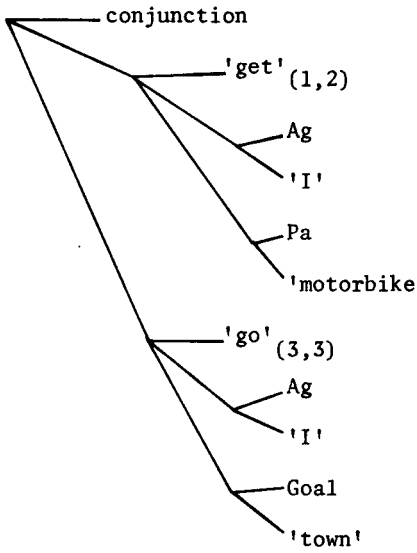
Chart 2. Event intervals and time index.

Each event in the discourse can be indexed so as to specify its relation to other events in the discourse. The index has two numbers, the first indicating when the event began, the second when it ended. The indices of the events in the chart are: A (1,3), B (3,7), C (7,9), D (13,13) and E (13,13). The indices show that the time spans of A and B overlap as do those of B and C. The time spans of D and E are

simultaneous and those of A, C, and D are in sequence. The unlettered span indicates a specified time lapse in the discourse such as after a while.

Other temporal relations can be specified with the index. Inceptive aspect is specified with an initial boundary (even number) and a span (odd number): Y (2,3). The completive is represented by a span plus a boundary: Z (3,4). The punctiliar verb is represented by a single span index: W (3); it does not have a beginning and an end but is viewed as a point. General statements are indexed as $(-\infty, +\infty)$, events or states that begin sometime before the first event are indexed (α, n), and those that continue beyond the last event as (n, ω), with states that both precede and follow the narrative as (α, ω).

With this time indexing the relation of each lexical proposition to other lexical predicates in the discourse can be specified as to time. As an illustration the sentence After I got the motorbike, I went to town can be represented as:



The index (1,2) on get indicates that it is the first event and has completive aspect with a final boundary marked (2). The index of go indicates that it is the next event in sequence after get.

The relation between the time index and the inherent aspect specified by the distinctive features of lexical predicates is not clear at present. It may be that time indexing is all that is needed to specify inherent aspect. However, it seems to me that it is best

to mark inherent aspect by distinctive features and have the function of the time index to be solely that of specifying relations between lexical propositions and modifying aspects. This permits us to indicate that a verb is inherently punctiliar and yet may be made durative (continuous) within a discourse, as with the punctiliar verb arrive in As I was arriving, he came to greet me.

6. RHETORICAL PREDICATES

Having discussed role and lexical predicates, we now turn to rhetorical predicates. Rhetorical predicates have propositions with either lexical or rhetorical predicates as their arguments and have as their function the organization of the discourse. These predicates can tentatively be analyzed by their distinctive features and constraints on their arguments. The present analysis is preliminary, however, and will require further research to test its empirical validity.

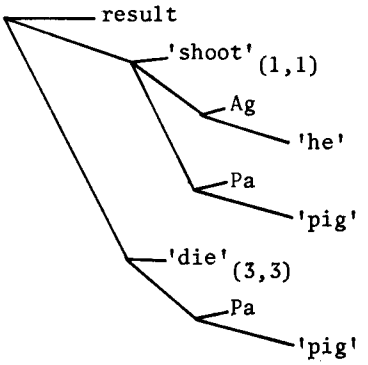
The rhetorical predicates are divided here into two major systemic groups plus a miscellaneous group whose classification is uncertain at present. One major group consists of the logical relations result, purpose, condition, adversative, alternative, and conjunction. The other major group consists of those involving set relations such as attributive, identification, equivalence, specific, analogy, spatial, trajectory, and temporal. The unclassified rhetorical predicates are explanation and response.

6.1 Logical Rhetorical Predicates

Logical predicates divide into two subclasses: (1) those with implication ($A \supset B$), called covariance by Grimes (1972), such as result, purpose, and condition; and (2) those without implication such as adversative, alternative, and conjunction.

All implicational predicates have an antecedent (A) and a consequent (B). For result and purpose there is a time sequence between A and B whereas with condition time sequence is not essential, e.g. in If it is red, it is ripe A and B are simultaneous. Purpose and condition differ from result in that in result both A and B are assumed real whereas for purpose the consequent is not assumed to be real and in the condition neither A nor B is assumed to be real.

The result predicates specify the relation in which the consequent argument (with the higher time index) is caused by the antecedent argument (the one with the lower time index). The result relationship in He shot the pig and as a result it died is displayed propositionally as:



I stated elsewhere (Litteral 1972:399) that "there cannot be identical agents in the dominating propositions of each argument; in fact, the consequent predicate may not have an agent in its underlying form." This statement is false as is shown by the counterexample He walked slowly and as a result he arrived late. Rather the case appears to be that when a result relation is predicated between A and B in which there is an agent in both A and B, then B is not interpreted as the intention of the agent when performing the event of A. That is, in the example above, result implies that the agent did not intend to arrive late whereas in He walked slowly in order to arrive late intention is specified. Result merely predicates that an antecedent event causes a consequent event without specifying anything as to intention. The constraints on the arguments are that they be sequential and are assumed to be real.

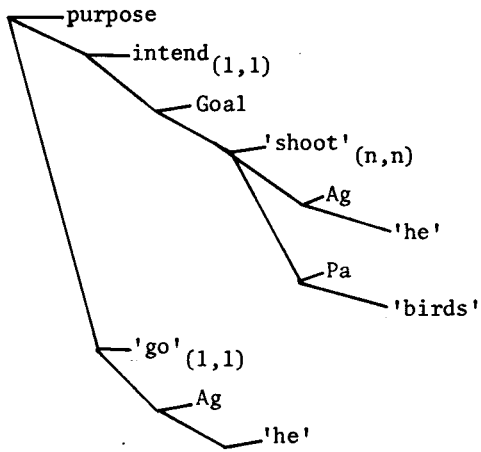
Result rhetorical predicates not only relate two lexical propositions as illustrated above but may also dominate large portions of a discourse. They have been observed to have a significant discourse function in Anggor explanatory discourse.

The purpose rhetorical predicate is similar to result in that A and B are in temporal sequence. However, they differ in that B is not assumed to be real, there is an added predicate indicating intention whose agent is the same as that of predicate A, and there is a restriction that the time of the intention is identical with that of A.

That B is not assumed to be real is often indicated in language by a non-indicative form. Examples are He went with them to shoot birds and Wanting to shoot birds, he went with them. Notice also that the simultaneity of the intention and A is indicated in the second example with a simultaneous clause Wanting to shoot birds. Notice also that the agents of want and go are the same. The constraint that lexical predicates within the domain of the antecedent argument must have agents also distinguishes purpose from result as result does not have any constraints on the semantic roles in its antecedent. This

constraint apparently invalidates the statement of Grimes (1975:207) that rhetorical propositions are those "whose predicates do not involve specifications on roles that must be present in their arguments."

Purpose is represented in the semantic structure with intention as a predicate, a predicate that may be realized in the surface structure in the form of an infinitive. The propositional representation of He went to shoot birds is:



Accomplished purpose presents a problem in semantic analysis in that it is generally not marked in the surface structure. Accomplished purpose is that situation in which the consequent is realized as in He went to the store and bought groceries. Bought groceries is a realized purpose but is not marked as purpose in the text but rather as an event in the event sequence. The important question here is: How does the hearer know to interpret a sequence of events as an accomplished purpose? Two answers are suggested here. The first is that the hearer recognizes that the participant functioning as an agent in the discourse is following a script, the script being a culturally recognized sequence of events such as those involved in purchasing food at a store or buying a meal in a restaurant. The second answer is that when there is a series of events involving the same referent(s) as agent, then the events are to be viewed as purposive. The problem that remains with this answer is: How does one distinguish the final purpose from the events for accomplishing that purpose? It is beyond the scope of this paper to attempt an answer to this significant question.

The purpose rhetorical predicate has not been observed to dominate a complete Anggor discourse in which the final purpose is signalled in the surface structure by an infinitive. However, purpose has been observed as dominating a complete discourse or large domains thereof

when the purpose is stated in a sentence with the hortatory such as Let's go pig hunting. This has been observed in both narrative and procedural discourse and is one means of indicating purpose when its domain contains numerous lexical propositions.

The condition rhetorical predicate specifies the if-then relation. The condition predicate differs from the result predicate in that A and B are not assumed to be real. It differs from purpose in that both A and B are not assumed to be real whereas with marked purpose only, A is assumed to be real. Condition also does not have the component of intention essential to purpose and consequently has no restrictions as to agents in the lexical propositions that it dominates. Condition differs from both purpose and result in that there is no time sequence requirement between A and B, e.g. If it is red, it is ripe does not involve time sequence.

One distinctive feature of the condition is that logically it can be considered as dominated by an alternative rhetorical predicate. This means that the condition stated is one alternative with there being another alternative that is either real or possible. For example, the condition If he comes, I will go has an implicit possible alternative of If he doesn't come, I won't go. A contrary-to-fact conditional has a real implicit alternative. For If he had come, I would have gone, the real alternative is He did not come and I did not go.

Condition rhetorical predicates have been observed to dominate large sections of Anggor discourse primarily in hortatory discourse. The exhortation is often presented as If you do such and such, then such and such will happen. Sometimes the alternative condition is specified also.

Result, purpose, and condition are logical rhetorical predicates with the feature of implication. The logical rhetorical predicates adversative, alternative, and conjunction do not have the feature implication. We will now turn our attention to the latter three rhetorical predicates.

In the adversative rhetorical predicate, both arguments are assumed real, there are only two arguments, and there are two differences between the elements in the arguments, one of which may be a negative. The alternative assumes that only one of its arguments is real, is not limited to two arguments, and focuses upon only one difference between arguments.

Conjunction is the unmarked member of the logical set and is a feature of several other logical predicates. It makes few restrictions on its arguments, its function being to unite its arguments into a set.

The adversative rhetorical predicate focuses on contrast. It has only two arguments and in those two arguments there are two elements that contrast. That is, there are two arguments X and Y and in X there are semantic elements a and b that contrast with semantic elements c and d in Y. One set of contrasts may be negation, between a and not a. For example in He went but I stayed the adversative predicate is realized as but, one argument is He went and the other is I stayed. In the first argument the elements are a: he and b: went that contrast with the elements c: I and d: stayed in the second argument.

Both the arguments of an adversative predicate are assumed real. There are no time restrictions between the time indices of the two arguments as they may be simultaneous or in sequence. The time relation between the two arguments may be one of the contrasts as in I am staying now but will go later.

Two types of discourse in which an adversative predicate has been observed to dominate large domains are some historical narratives and expositions. In one Anggor narrative the focus is upon the different actions of two brothers after they fight over land rights. In Korafe of Papua New Guinea (Jim Farr, personal communication) an exposition of traditional customs was presented by way of contrast with contemporary practice.

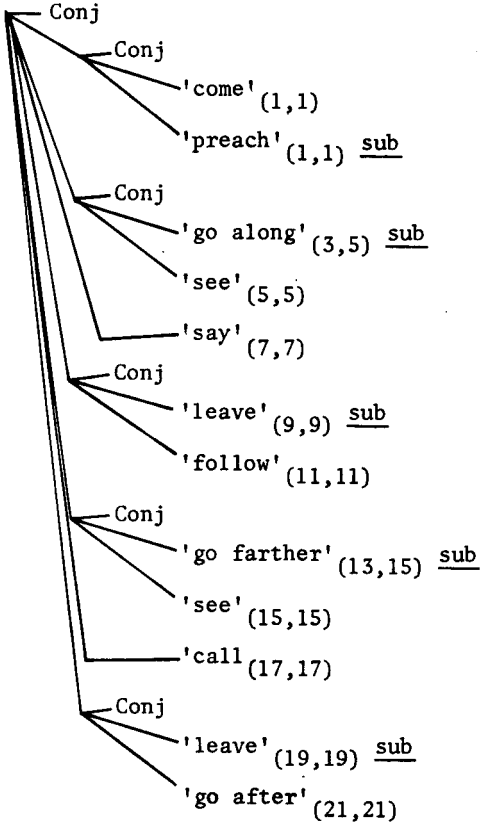
The alternative rhetorical predicate indicates an OR relationship between arguments. Unlike the adversative, it may have more than two arguments, only one of which can be true, and there is a focus upon one difference between arguments, not two. In the following example only one of the three alternatives is assumed possible by the speaker: He is either a Kiwi, Yank, or Aussie. The time indices of the arguments are generally identical unless time is the focus of the alternative.

Alternative predicates play an important role in some hortatory discourses where they indicate what will happen if the hearers follow the speaker's advice and what will happen if they do not.

The conjunction rhetorical predicate, similar to Grimes's (1975: 219) term collection used earlier by me (Litteral 1972), is the unmarked member of the logical rhetorical predicates in that it is the most common and places the fewest restrictions on its arguments. The only restriction appears to be that the arguments must have some component of semantic similarity. The fact that conjunction is the unmarked member of the logical predicates is indicated by the fact that many of the other predicates can be realized in the grammar as conjunction whereas conjunction cannot be realized in all these other forms. This is illustrated by the following examples of logical predicates realized grammatically as conjunction: (realized purpose) He went to the store and bought some food, (result) He cut the tree

and it fell, and (adversative) He went and I stayed home. Some alternatives may also be expressed with grammatical conjunction when indefiniteness as to reality is expressed in each clause as in He may be an Aussie and he may be a Yank.

Conjunction may be realized by particles such as and, by affixation such as medial verb affixes in many Papua New Guinea Highlands languages, or by juxtaposition only. Staging also affects the manifestation of conjunction as there are different levels of conjunction in a discourse, i.e. all the events in a narrative are not equally conjoined. The result is subordinate versus coordinate conjunction. For example, in Mark 1:14-20 there are seven sentences, each of which begins with kai 'and' and contains an indicative event verb. Some of these verbs have event verb participles associated with them. The indicative verbs indicate coordinate conjunction relationships whereas the participles indicate subordinate relationships. The event verbs in their subordinate and coordinate relations are semantically represented here with sub indicating a subordinate argument:



Conjunction is used extensively in most types of discourse. It dominates large sections of discourse as well as whole discourses in narratives where a series of events, generally in temporal sequence, are conjoined into a unit.

Chart 3 gives a tentative analysis of the distinctive features of logical rhetorical predicates. Only those necessary for distinguishing the types are listed. Further features such as intention, number of arguments, and identity of agents could be added but they are not essential for distinguishing all the types. Implication means that the relation A⊃B operates, ∧ indicates there is a relation of conjunction with the negative value indicating ∨ (or), and real indicates whether both arguments are assumed real or not.

	Implication	∧	Real
Result	+	+	+
Purpose	+	+	-
Condition	+	-	-
Adversative	-	+	+
Alternative	-	-	-
Conjunction	0	+	0

Chart 3. Distinctive Features of Logical Predicates

The specification 0 in conjunction indicates that this feature is not relevant for the definition of this predicate, the given feature being present with certain arguments absent with others.

Two gaps are noticeable in the chart. There is no predicate with the features specification +, -, +. A type of rhetorical predicate that would fill this gap would be temporal condition such as When the patrol officer came, we gathered in the village. This example is +Implication because B depended upon the occurrence of A. It is -∧ in that there is an alternative implication: When he didn't come, we didn't gather. It is +Real in contrast to pure conditions in that the events are real and not hypothetical. The other gap is -, -, +. This gap, however, will probably remain empty as it does not seem logically possible that there could be an alternative in which both arguments are real.

6.2 Set Rhetorical Predicates

In logical rhetorical predicates the relation between arguments generally relates to arguments as wholes. With the set rhetorical predicates, however, there is generally a focus upon elements within the arguments so that referential identification between arguments is important. Set relations state either that two arguments are equal

(A=B), that a number of elements belong to a set (a, ..., n$\in$ A), or that one set is a product of two sets (A x B). These form three subtypes: Equative (A = B), Specification (a, ..., n$\in$ A), and Setting (A x B).

The equative rhetorical predicates are equivalence and analogy. They state that there is a relation of equivalence between their arguments. In each case there is coreference between elements in the arguments. With the equivalence predicate there is identical coreference between a minimal subset of elements in each argument. In analogy there is coreference on the basis of similarity rather than identity.

In the equivalence predicate there are two or more arguments that are generally equivalent. There is identity of a subset of referents and predicates among the arguments. The time spans of the arguments are generally equivalent or have equivalent subsets of lexical predicates with equivalent time relationships among them.

An example of an equivalence predicate with two lexical propositions as its arguments is He is the leader of their country. He is their prime minister. Examples of the equivalence predicate where it dominates large sections of a discourse are overlays and lexical recycling. Overlays, described by Grimes (1972), refer to the retelling of a sequence of events with each retelling repeating some events and possible adding some new ones. Each retelling is called a plane with each plane having generally the same time span and some identical events. Each plane is an argument of an equivalence predicate. Lexical recycling, described by Wendland (1975), refers to the almost identical repetitions of events that occur in folk tales. The events within each cycle are generally the same as are the participants. Each cycle usually changes one or more events or a participant. Lexical recycling is similar to overlays except that the cycles are in sequence whereas with overlays each plane has the same time span. In cycles the relation of events within one cycle is identical with the events in another cycle, e.g. in the story of Goldilocks the eating of porridge, sitting in chairs, and sleeping in beds is in the order of papa bear's first, mama bear's second, and baby bear's last.

Analogy differs from equivalence in that there is no exact equivalence between the elements in the two arguments. The elements in the two arguments are equivalent by means of comparison. The comparison between the arguments is generally indicated lexically in the surface structure by terms like by analogy, is like, and are similar. One argument consists of the item compared; the other argument consists of the grounds of comparison. Parables and metaphors involve analogy predicates but the relationship between the arguments is not made specific with the hearer expected to deduce the relationship on the basis of his general knowledge.

Specification predicates have one argument which is a proposition with an element in focus and other arguments which make specific statements about that element. Subtypes of specification predicate are identification, attribute, manner, and specific.

The identification predicate has one argument which contains the element in focus and one or more arguments that state specifics about what the element is. An example would be The kina and toea are new money. The kina are notes and the toea are coins. The kina is like the Australian dollar and the toea is like the Australian cent. The first sentence introduces the elements and the other sentences give further information that identify them. The arguments are generally realized as stative clauses or embedded clauses, e.g. The man who is on the street was killed. Identification predicates are predominant in descriptive discourse.

Attributive and manner are similar with the attributive specifying qualities about the element in focus and the manner specifying qualities about an event. These predicates do not appear to dominate large segments of discourse but are generally restricted to limited domains.

In the specific predicate, one argument has an element that is a general category with the other arguments containing one or more elements that belong to the set that is defined by the general category. In the following example the first sentence specifies the general category and the other arguments the parts that make up the general category: We went to America last year. First we went to Port Moresby and stayed overnight. Then we went to Sydney and overnighted there. Then we went to Hawaii and switched planes there and went to San Diego. The first sentence specifies the set A and the other sentences specify the elements a, ..., n that are in A.

The restrictions on the specific predicate are that the referents in the arguments must be the same, the time span of the general argument and the specific arguments must be the same, and the semantic content of the specific arguments must be within the semantic domain of the general argument. The specific predicate relates a topic sentence to the remaining sentences of a paragraph or the title or specified theme of a discourse to the remainder of the discourse.

Setting predicates can be viewed as involving a product set of A and B in which A consists of time or space and B the set of events or states related to that particular time or space. One argument (A) consists of the temporal or spatial setting and the other arguments (B) consist of all the propositions that occur within that time or space. The setting argument provides orientation for the events or states of the other arguments.

Setting predicates may have the same arguments as another predicate, e.g. in a narrative a setting predicate may share arguments with a conjunction predicate. Setting predicates may dominate large sections of discourse, especially in narratives where they provide the spatial and temporal orientation for the particular events.

The trajectory predicate is a subtype of setting predicate. In the general setting predicate discussed above there is one setting (set A has only one member) for numerous events or states (set B has numerous members, $\underline{n} > 1$). In the product set, each $\underline{n}$ in B has the element in A associated with it. On the other hand, a trajectory predicate specifies a relation in which each event or state or subgroup of events or states is associated with a specific location. An example would be He left the village, went down to the river, went up the hill on the other side, and crossed over the ridge. The relationship between set A and set B is such that the elements or subsets in each are ordered in respect to each other with each element or subset being paired with its corresponding member in the other set. Within the text a trajectory functions much as a setting. The difference is that the setting predicate defines sections of a text according to areas whereas the trajectory defines them by lines. The trajectory predicate is found primarily in travel narratives (Cf. Grimes and Glock 1970).

Chart 4 gives the distinctive features of set rhetorical predicates. These features are presented as tentative with additions or modifications certainly required as more research is done. The three features are A = B which states that the two arguments are considered equal, $\underline{x} = \underline{x}$ in which there is referential identity between the arguments, and $\underline{A} \times \underline{B}$ which indicates a product set of A and B.

	A = B	x = x	A x B
Identification, Manner Attributive	-	+	-
Specific	-	-	-
Setting	-	+	+
Trajectory	-	-	+
Equivalence	+	+	-
Analogy	+	-	-

Chart 4. Distinctive Features of Set Rhetorical Predicates

There are no predicates with the features +, -, + and +, +, + since if A and B are equal, then the product of A x B would be identity.

6.3 Unclassified Rhetorical Predicates

There are two rhetorical predicates that are not easily classified on the basis of the features listed for logical and set predicates. These two predicates are response and explanation.

The response rhetorical predicate relates two arguments in which in one argument a participant initiates an action affecting a non-initiator and in the other argument the roles are reversed as the non-initiator of the first argument responds to the action of the initiator of the first argument. The response predicate is common in conversation in which one participant states, questions, or commands something and another participant reacts by adding information, answering the question or obeying or disobeying the command. The initiation of a response need not be verbal but may be an action as in John hit Bill and Bill hit him in response.

There are three essential characteristics of a response predicate. First, there is a reversal of roles between the arguments: the agent of the first argument becomes a non-agent in the second and vice versa. Second, there is a time sequence between the arguments: the response must follow the action that initiated it. Third, there is implicit or explicit carryover of some semantic content from the first argument to the second: content from the first argument is affirmed, negated, or added to in the second argument.

The response predicate is similar to the result predicate in that there is a temporal sequence between arguments, both arguments are real, there are not identical agents in the predicates (only a tendency in result), and the response tends to be caused by the initial action. It is different from result in that it requires an agent in the second argument and in that the first action may have little efficacy in causing the second action, e.g. the giving of a command may or may not cause compliance. However, it may be wisest to consider the response predicate a subtype of result predicate.

The response predicate is found in texts primarily in conversation and in folk tales. In conversation there is a set of speech acts with responses to them. The response argument of one response predicate may become the initial argument of another response predicate. The response predicate dominates complete folk tales. The initial argument is the action of the villain with the response being the action of the hero that leads to the resolution of the conflict caused by the villain.

The other unclassified rhetorical predicate is explanation. The explanation predicate is similar to setting predicates in that it provides a logical setting for events or states in the discourse. It provides background information and as such reveals the speakers evaluation of his audience. The speaker uses an explanation to provide

information that he assumes his audience will not know. At times it is more neutral in the relation it specifies between arguments as in She went out to gather leaves. There were no men living here in those days. This provides needed information for the following story about a woman first meeting a man. In other instances the explanation predicates a relation that is more causative, e.g. He was living alone in the village. His wife had died the year before. Because of its indefinite nature, no distinctive feature analysis of explanation is attempted here.

7. SUMMARY AND CONCLUSIONS

In this paper we have followed Grimes's proposal that the semantics of discourse can be displayed by means of a propositional structure consisting of propositions, predicates, and arguments. There are three types of predicates within the propositions: roles, lexical predicates, and rhetorical predicates. These types of predicates differ from one another on the basis of their inherent semantic features and by the types of arguments that they dominate. Part of a semantic description consists of specifying the distinctive features of types of predicates and the constraints on their arguments.

There are numerous areas where further research is needed on the analysis of semantic predicates. First, there is the need for empirical research to test the validity of the set of features proposed for analyzing predicates. Most certainly these will need to be modified and possibly added to as more languages are used to test these proposals. Second, research is needed into the way in which restrictions on arguments can be specified by distinctive features. Phonological and morphological constraints have been specified in terms of distinctive features as have some syntactic constraints. Hopefully semantic constraints in discourse could be specified in the same way. Third, there is a need for more data on the ways that semantic propositions map onto surface structures. Much has been done in the area of lexical and role predicates but little is known to date on the relations between rhetorical predicates and surface structures. Information is needed not only on language specific mappings but also on possible language universal mapping relationships, e.g. the unmarked form of result syntactically is cause before result. Fourth, empirical tests are needed to determine how hearers interpret texts semantically. This concerns the exegesis of texts. For example, if the feature constraints on the arguments of a rhetorical predicate are present in the text but the relationship itself is not overtly marked in the text, how is the relationship interpreted. An example would be a text in which there are a number of verbs in sequence all with the same agent but no relationship between the verbs specified except sequence. Would this be interpreted as purpose since purpose requires identity of agents in the underlying predicates? Fifth, this is an area of possible valuable ethnosemantic research. Ethnosemantics has contributed much to the analysis of lexical domains. Is there also a "folk semantics" or is semantics so abstract that there is no taxonomy for it in most languages?

FOOTNOTES

1. This paper is an extensively modified and expanded version of a lecture on rhetorical predicates given at a linguistic consultants workshop at the Summer Institute of Linguistics Papua New Guinea Branch headquarters at Ukarumpa in September, 1976. This is a work paper presented primarily for encouraging discussion and research in the areas under consideration here. I have been helped and encouraged by comments on the lecture by Barbara Sayers, Bruce Waters, Marshall Lawrence, David Thomas, and George Huttar. They, of course, are not responsible for the numerous deficiencies that remain in the paper.

2. Frederiksen has made a semantic analysis using distinctive features that is more detailed than that presented here, especially in the realm of roles and lexical predicates. His analysis of rhetorical relations is not as adequate as that of Grimes (1975).

3. For more on the formal grammar of semantic propositions, see Grimes 1975, chapter 13.

4. For a more complete discussion of semantic roles, see Grimes 1975, chapter 8.

5. Anggor is a non-Austronesian language in the West Sepik Province of Papua New Guinea on which I have conducted research since 1965.

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THE DEVELOPMENT OF DISCOURSE ANALYSIS

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0. INTRODUCTION

In this paper the different contributions to the study of discourse will be summarized. It will begin with the work of Harris in 1952 and conclude with the recent work of Grimes. Although the emphasis will be upon the contributions of linguists, some contributions from the fields of sociology, anthropology, and artificial intelligence will be discussed as well. The chapter will conclude with a presentation of the concept of discourse followed in this study.

1. TRANSFORMATIONAL

In 1952 Harris, through *Discourse Analysis* (1970a), became the first American linguist to attempt to apply the principles of descriptive linguistics beyond the limits of the sentence. His method is formal, and has as its goal the discovery of definite patterns for "...particular texts, or for particular persons, styles, or subject matters." (1970a:313). It was hoped that this method would contribute significantly to two linguistic problems: that of continuing linguistic analysis beyond the limits of the sentence and that of correlating language and culture.

He seeks "...to collect those elements which have like distributions into one class and thereafter speak of the class as a whole rather than of each element individually" (ibid: 318). The result is sentences analyzed into sets of equivalence classes based upon sequences that occur in equivalent environments. The successive sentences of a text are then displayed bidimensionally with the horizontal axis showing equivalence classes within each sentence and the vertical axis showing showing equivalence classes in successive sentences. The display reveals the chains of equivalence classes that occur within the text.

The main problem, however, is in establishing equivalence classes when there are no equivalent forms in the text. Harris' solution is to introduce the transformation, the analytical tool that changed the nature of linguistic analysis for most of American linguistics. Transformations are used to break down complex sentences "...into more intervals, in such a way that the smaller intervals have a form which occurs in the text" (ibid: 333). The use of transformations to analyze sentences into equivalence classes does not necessarily mean that the resultant sentences have the same meaning nor that they are stylistically equivalent to the original form.

Harris analyzes an English text (1970b) using his method and also applies it to an Amerindian language, Hidatsa (1970c). In the latter his analysis helps him to discover a phenomenon, now called linkage, that he describes thus: "In about half the transitions from one group to the following one, a side word in the last clause of a group appears as the subject of the main word in the next group." (1970c: 378). Gudschinsky (1959) applies Harris's technique to a Mesoamerican language, Mazatec, and observes that the narrator provides a threefold repetition of the story, each time from a different perspective. This repetition is similar to what Grimes (1972) describes as an overlay.

The significant contributions of Harris' method to discourse studies are: (1) an attempt at analysis beyond the sentence; (2) a method of establishing equivalence chains (which probably are reflections of paragraph and discourse themes); and (3) the introduction of the transformation. It is ironic that the transformation, the linguistic tool introduced to assist in discourse analysis, would come to dominate a linguistic theory that denies the legitimacy of discourse analysis for linguistics.

2. TAGMEMICS

Pike (1967, first edition Vol I, 1954) makes discourse an essential part of tagmemic theory by postulating it as a level in the grammatical hierarchy. For Harris discourse analysis began primarily as a procedural matter that never entered into a comprehensive theory of language, whereas for Pike discourse was an essential part of an integrated view of language and behavior, and specific procedures of analysis developed later. For Pike discourse is related to its cultural context as a verbal type of behavioreme; that is, "...an emic unit of top-focus behaviour which is related to its cultural setting in such a way that cultural documentation may be found for its beginning, ending, and purposive elements" (1967:121). The sentence is inadequate as the terminal point of linguistic analysis as "Sentences themselves cannot be analyzed without reference to higher level relationships" (ibid: 147). He further states, "Hierarchical structure does not stop with the sentence, nor begin with it. Rather it must begin with the total language event in a total cultural setting..." (ibid: 484).

Having discussed discourse primarily from a hierarchical viewpoint Pike (1964) later analyzes some of the practical problems related to roles in discourse sequence encountered in Philippine languages and modifies procedures to account for them. Some of the problems are: (1) The same situational role (e.g. actor) in different grammatical roles (e.g. subject, object) and the reverse situation of different grammatical roles with the same situational role; (2) The need to "...be able to know what has happened to a particular person in the plot from one sentence to the next" (ibid: 3), or the problem of cohesion and reference; (3) "...that sentence structure is determined not by random selection, but that one sentence type in a story

demands that a limited selection of sentence types follow it such that the actors involved must flow...from one point in the story to another via one grammatical structure to another" (ibid: 4), or the problem of cohesion and staging; and (4) "...the attitude of the speaker towards the components of the sentence" (ibid: 7) or the problem of mode. He modifies his theory by introducing subtypes of grammatical roles according to their situational roles, an idea developed more fully by Fillmore (1968) in his study of case.

Longacre (1968), also studying Philippine languages, provides a more systematic formulation of tagmemic theory in relation to discourse. He attempts to develop a lexical hierarchy for a text, later abandoned (1972:xiii), and specifies different paragraph and discourse types on the basis of their functional components. He initiates a typology of discourse based on discourse features, concentrating on four basic types: narrative, procedural, expository, and hortatory. Narrative and procedural are sequence oriented with narrative related to accomplished time and procedural related to projected time. Hortatory discourse is behavior oriented in projected time and expository is text or spatially oriented in accomplished time.

Longacre, together with Ballard and Conrad (1971), introduced a concept of deep structure into tagmemics. His study is primarily concerned with the semantic relations between clauses and their various grammatical manifestations. A deep structure using the symbols of symbolic logic indicates semantic relations with tagmemic formulas representing their possible grammatical manifestations.

Longacre (1972) provides a typology of clause chaining in New Guinea languages and proposes that clause chains reveal sentence and paragraph boundaries. He expands his deep structure to include semantic relations that encode in structures from the clause up to the paragraph. He proposes a natural outline for the functional elements of discourse and expands the list of its identifying contrastive features.

Tagmemic studies in discourse have generally focused on the constituents of paragraphs and discourse and the identification of participants. Loos (1963) notes that for Capanahua paragraphs are related to a subject referent with the first tagmeme of a paragraph announcing the paragraph referent. He also describes linking tagmemes that indicate a change of subject and a time relation between two clauses, a situation similar to medial verbs in New Guinea languages. Bridgeman (1966) analyzes the varieties of paragraphs in spoken Kaiwa. Wise (1971) shows how both grammatical and lexical information contribute to the identification of participants in Nomatsiguenga discourse. Pike and Lowe (1969) provide rules that explain how the proper identification of pronominal referents is maintained in conversation. Deibler (1972) in his study of Gahuku does not accept the Longacre view of paragraphs as grammatical constituents and considers them to

be semantic units with internal cohesion and boundary features but without internal grammatical structure. He bases his discourse types on the statistical analysis of features rather than on differences of tagmemic structure.

3. STRATIFICATIONAL

Lamb (1966), the founder of the stratificational school, does not discuss discourse as an essential aspect of his theory although he does not exclude suprasentence grammar. Lockwood in his introduction to stratificational linguistics allows for the significance of discourse although he does not specifically discuss it when he speaks of a syntax "...which specifies how the morphemes may combine together to form words, phrases, sentences, and potentially even whole texts" (1972:15). In comparing the tagmemic and stratificational schools he states that they both insist upon "...the linguistic relevance of suprasentence structure" (ibid: 255), and expresses the opinion that the findings of tagmemicists can be accommodated in a stratificational framework as well.

Gleason (1968) and his students (Taber 1966, Cromack 1968, and Stennes 1969) have contributed most to discourse analysis within a stratificational framework. Gleason concentrates on narrative and indicates five areas that must be covered in an adequate description. They are: (1) the identification of participants and their roles; (2) the chain of events forming the backbone of the narrative; (3) the attendant circumstances; (4) the relation of the observer to the development of the narrative; and (5) dimensions of the text as text (1968:42). He notes that a narrator has freedom in selecting events to specify, but he has certain constraints imposed by his language and culture. The skeleton of narrative is the event chain with its main features being: (1) it is ordered in sequence; (2) each action is related to the others; (3) events are connected by a small set of connections such as sequence in time, causality, and simultaneity; and (4) different types of repetition are possible (ibid: 46-7). Grimes (1972:2a) states that two important factors in the stratificational approach to discourse have been the separation of a text into different types of information and the representation of the text as a network which can aid in the discovery of significant linguistic relationships.

4. SOCIOLINGUISTICS

Labov and his associates have contributed to the study of several genres: narrative (Labov and Waletzky 1967, Labov 1972b), insults (Labov 1972a) and descriptions (Linde and Labov 1975). Labov and Waletzky analyze narrative both formally and functionally. Functionally narrative is a "...verbal technique for recapitulating experience, in particular, a technique of reconstructing narrative units which match the temporal sequence of that experience" (13). By analyzing the displacement sets of clauses within a narrative they

find that the event clauses that form the skeleton of the narrative are independent clauses that are locked into position so that any change of their position within the narrative results in a change of meaning. They also analyze the structure of narrative, presenting a view of discourse structure not unlike that of folklorists or tagmemicists.

Labov (1972) discusses the importance of "shared knowledge" (302) for discourse analysis and shows how shared propositions between speakers explain apparent *non sequiturs* in conversation.

Linde and Labov (1975) analyze descriptive discourse (descriptions of apartments) in order to determine how the cognitive content of spatial relations is encoded in texts. They observe restrictions as to the manner and order in which spatial information is formulated. The social division of the semantic content into major and minor categories determines the use of syntactic categories such as determiners and thematization. Sentence boundaries as well are determined by semantic content. They provide rules that formulate the semantic content of the discourse and that relate the discourse rules to the sentence grammar.

Speier (1972) analyzes the tying (cohesive) procedures in conversation. Conversation tying procedures consist of question and answer sequences, elliptical utterances, and the extension and completion of the utterances of another in the conversation.

Schegloff (1972) discusses the rules for specifying location in conversation. There is a set of terms that may refer to a location but each term in the set is not appropriate for use in every context. The understanding of locational terms in conversation requires that the participants share a common-sense geography organized hierarchically and a knowledge of where activities are performed. Sacks (1972) specifies some of the "maxims" that narrators (viewers) and hearers operate within story telling, presuppositions that must be known before the text can be understood. One maxim states that if event B can be considered as a result of event A, then interpret it that way. Another maxim states that if one sees a "category-bound activity" (e.g. mothers pick up crying babies) being performed by someone (woman) who could be a member of that category (mother), then he interprets it that way (the woman picking up the crying baby is its mother).

5. SYSTEMIC

The contribution of two linguists to discourse study should be noted here. Gunter's contribution is the analysis of the relation of a sentence to its context through accent. Halliday provides a comprehensive theory of language functions and how they are realized in the formation of text.

Gunter (1966), criticizes American linguists for their preoccupation with sentence grammar which leads them to an inability to adequately explain accent. Many transformational generative grammars fail to see the sentence as having a paradigm of forms, which is the case when one analyzes spoken forms. Sentences are "...related not only by generative rules but by virtue of their similarity plus THEIR POSITIONS IN TIME" (165). He speaks of Context Grammar which studies the features of a sentence that bind it to its context. Each variety of a sentence signals its relevance to its context. Specifically he shows how accent placement signals a relationship between a sentence and its context.

Halliday (1967-68, 1970) is concerned with the structure of language as it relates to the functions that it performs. Focusing on the functions signalled in the clause, he speaks of transitivity as related to cognitive content, mood as related to the participants in the speech event, and theme as related to the organization of the content into an act of communication that relates it to what has preceded in the discourse. Intonation relates to the information structure, the system of dividing the discourse into information units and focusing elements within it. In 1970 he postulates three functions of language: (1) the ideational which expresses semantic content; (2) the interpersonal which expresses the role relationship in the speech event; and (3) the textual which relates the message to its context.

Halliday (forthcoming) relates text and social situation. Semantics consists of four components: experiential (verbs and case relations), logical, interpersonal, and textual. There is a textual component of language whose function is to develop the language of use in contrast to language in the abstract. It produces language related to its context instead of language as decontextualized sentences. The textual component consists of the thematic and information structure systems, which are structural, and the cohesive system, which is not. A text also has "generic structure", the form of a text that is the property of a genre. Generic structure, textual structure, and cohesion distinguish text from non-text. The textual component is part of the meaning system of language and text does not result from superimposing a text form on prior cognitive content.

6. SEMANTIC FORMALISM

The term semantic formalism does not apply here to a school of linguistics but is used, for lack of a better term, to refer to those who have concentrated on the formal semantic representation of texts. The two that will be discussed here are Mel'čuk and Frederiksen who represent semantics as graphs or networks rather than trees.

Mel'čuk (1973) wants a model that is translative, in the sense that it establishes correspondences between a given meaning and all synonymous texts having that meaning. Semantic representations have two components: a semantic graph and information about the communicative organization of an utterance. The semantic graph provides information about the text without distributing it into sentences. It consists of semantic units and arcs representing semantic relations among the semantic units. Information about the communicative organization consists of the distinction between theme and rheme, old and new information, and psychological and emotional emphasis. This information is to the semantic graph what intonational features are to the phonological elements of a sentence. Syntactic (deep and surface) morphological, and phonological components relate the graph to specific sentences in texts. Noteworthy in Mel'čuk's study are the use of a graph for semantic representation of a total text and his analysis of lexical functions revealing the relationships between words.

Frederiksen, a psychologist, seeks a model that will represent the semantic structure of discourse without reference to linguistic structure. His network model is a propositional structure composed of a semantic network consisting of objects and actions and relations between them (case) and a logical network consisting of three systems: logical (conjunction, alternation and implications), causal, and relative (comparison, time, location, tense and aspect). All elements within the system are defined in terms of semantic primitives. A text is represented by a semantic structure with a set of propositions and stative propositions that define elements within the network. The logical system states the relationship between the propositions. The network is connected by reference (by the recurrence of a concept or structure in the network) and by the logical structure. Frederiksen's model provides a most thorough analysis of the semantic components of objects, actions, and relations between them and also a procedure for displaying a text semantically. It does not indicate the process used in moving from semantic network to text.

7. ARTIFICIAL INTELLIGENCE

Those in the field of artificial intelligence have made contributions to discourse analysis in their attempts to develop computer programs that can interact in dialogue to obey commands and to answer questions or understand a text. In so doing they have been compelled to solve problems related to understanding discourse that have been largely ignored by linguists.

Winograd (1972) has a system in which the computer can enter into English dialogue about a limited subject, obey commands, answer questions, and ask for clarification when its programs can not understand a sentence. The understanding system covers three aspects of language: syntax, semantics, and inference (reasoning). Knowledge in the system is represented in the form of procedures rather than the

linguist's lists of rules or patterns with the result that the system is more flexible and powerful than rules or patterns for understanding natural language.

The syntactic component of the program is based upon the systemic grammar of Halliday because it emphasizes "...the importance that meaning plays in the structure of language." The semantic system consists of objects with properties that enter into relationships. The semantic system must define words, relate the meanings of words in syntactic structures, and show how the meaning of a sentence depends on its context. There are three types of context: (1) the local discourse preceding the sentence and is especially important for reference; (2) the overall discourse context which is relevant for the proper understanding of elements within the discourse and (3) the context of knowledge about the real world that affects the way language is understood. Unlike conventional linguistic analysis the program does not operate from top-to-bottom or botton-to-top but proceeds simultaneously with both syntactic and semantic analysis as meaning assists with parsing and parsing assists with understanding. In this respect the program probably more closely represents how people understand language than most linguistic theories do.

Schank and Abelson (1975) develop a system to solve the problem of formally representing world knowledge and its relation to the understanding of texts. They view as "...the fitting of new information into a previously organized view of the world" (ibid:151). They observe that a single sentence sets up expectations as to what will follow in the discourse. Their task is to explore these expectations and to formalize them so that they are available to an understanding system. They introduce the concept of scripts to describe mundane situations and plans for novel situations.

The script is "...a structure that describes an appropriate sequence of events in a particular context...a predetermined, stereotyped sequence of actions that define a well-known situation" (ibid: 151). Scripts are based upon causal chaining in which one action results in conditions that permit another action, the latter action permissible only upon the successful completion of the preceding action in the chain. The scripts interpret new information in terms of previously stored information. There are numerous scripts and a story may use more than one. A story often consists of a script with one or more interesting deviations. Scripts can be thrown off their normal course by interruptions, obstacles, and errors. The scripts are represented formally by sets of primitive actions.

Plans describe the deliberate actions of people, the choices people make to accomplish a goal. Those who hear a discourse understand apparently unconnected sentences by means of plans. The plan starts with a goal and lists a series of actions that will accomplish

that goal. "The basic component of the plan is the 'deltac'...an action or a group of actions that leads to a desired state" (ibid: 154). A story is represented by a chain of the main events connected to scripts and plans. Together these provide the necessary information for understanding a story.

The contributions of artificial intelligence to the study of discourse in many ways parallel the contributions of sociolinguistics in analyzing the non-textual information that is essential for understanding it.

8. THE THREAD OF DISCOURSE

Grimes' *The Thread of Discourse* (1975) is the most complete presentation of discourse study to date. It is eclectic rather than bound to one school of thought, utilizing the contributions of different approaches to discourse. It provides the field worker with tools for discourse analysis as well as a theoretical framework that guides without restricting. The first section of the book is heuristic while the last section is theoretical.

The heuristic section concentrates on the types of information and constituency in discourse. The basic division in types of information is between events and the participants associated with them and non-events. The types of non-event information in discourse are setting, background, evaluative, collateral, and performative. One of the first suggestions to the analyst is that he divide a text into the different types of information and note the relations between the types of information and the grammar.

Associated with the analysis of types in information is span analysis, a span being a stretch of text in which there is some type of informational uniformity. The analyst looks not only for uniformity of types of information but also for uniformity of important grammatical features such as tense and aspect. The ends of spans are often associated with specific grammatical features and where multiple spans and simultaneously there may be evidence for divisions within the text.

One aspect of discourse analysis is the division of a text into its constituent parts. The partitioning principles are based on temporal or spatial setting, theme, uniformity of characters, and participant orientation, i.e. stretches where a single participant maintains a relatively high degree of activity. Generally following Longacre here, Grimes assumes there are a limited number of levels of organization within discourse from morpheme through discourse. Some languages may lack distinctions between certain levels whereas others may distinguish additional levels.

Theoretically, Grimes sees three types of relations that underlie discourse: content, cohesion, and staging. The semantic structure,

or content is represented as a propositional grammar. Lexical predicates represent cognitive content and normally encode as clauses and have semantic roles (cases) as their arguments. Lexical predicates are either dynamic or static and the semantic roles are related to orientation, process, agency, or orientation-process. Rhetorical predicates indicate logical relations and have lexical predicates or other rhetorical predicates as their arguments. The primary function of rhetorical predicates is that of organizing the content of the discourse. Reference is also an essential part of semantic representation and is formalized by referential indices. Semantic structure is organized hierarchically and is mapped to linear string through transformations.

While studying the linear organization of discourse the linguist is concerned primarily with cohesion and staging. Cohesion indicates how new information in the discourse is related to what has already been given or assumed. Identification is important to cohesive structure in terms of the types of substitution permitted within a text. Another form of cohesion is the overlay, a device first described by Grimes (1972) in which a story is told repeatedly with some information repeated between successive tellings, but with different details added at each repetition.

Staging concerns the viewpoint the narrator uses in presenting information to the hearer. Here Grimes generally follows the concept of theme as developed by Halliday (1967). Theme is independent of but related to the cohesive system. Theme may be marked or unmarked and is interrelated with the systems of mode (in English) and voice. Grimes goes beyond Halliday in extending the concept of theme beyond the sentence to paragraphs and discourse and notes the use of pronominals, linkage, and chaining systems to indicate higher level theme. Topicalization is also an aspect of the thematic system.

The final form of a discourse is dependent not only upon the choices of the speaker as to content, staging, and cohesion but also upon rules regarding variability, semantic shaping, linearization, and output. Variability rules are determined by the social context of the speech event and provide a speech form that reflects the style of the speaker and the speech form. Postsemantic shaping rules insert semantic elements that may not have been chosen by the speaker but are entailed by the choices he made, or they delete elements that are the result of his choices but are neutralized in certain environments. Linearization rules determine the order of elements in the sentence specifically relating the choices of cohesion and staging to the ordering of the content. Output rules determine the final lexical and phonetic representation of the ordered elements in each sentence.

Two other works (Beekman and J. Callow, 1974, K. Callow 1974) will be discussed here, not because they necessarily closely follow the theory developed in *The Thread of Discourse* but because they

discuss many of the same topics on a non-technical level. Beekman and J. Callow (1974) specify many of the semantic problems involved in translation. Among the types they discuss are those of formal versus dynamic equivalents, lexical equivalents, implicit information, obligatory categories in the target language that are not in the source language, reference, and propositional displays. Their propositions are similar to Grimes' rhetorical predicates but are exegetical tools for analyzing a text rather than relational elements in an underlying semantic representation.

K. Callow (1974) discusses the problems of translation in the context of discourse. She discusses translation as it relates to four "categories of appropriateness" that relate to the expression of meaning. The four categories are groupings, cohesion, information structure, and prominence. The category of groupings consists of the divisions of a discourse into smaller units. These may be grammatical groupings (sentence, paragraph and episode) or plot groupings (introduction, development, climax, conclusion, etc). A discourse is cohesive when it has "...identifiable persons or objects which form the subject matter throughout, and these persons must perform or experience a series of events in a way that constitutes an orderly progression" (29-30). Lexical cohesion unites a discourse by using items from the same semantic domain. Participant cohesion is signalled through noun and pronoun rules of identifying and connectives that signal same or different subject. Event cohesion is maintained by those elements or rules that specify the temporal relations between events.

There are three types of prominence in discourse: thematic, focal and emphatic. Thematic material develops the theme of the discourse in contrast to background material which does not. Focal prominence has a spotlighting effect to bring attention to some thematic material and can be accomplished by grammatical or rhetorical (rhetorical questions, paraphrase) means. Emphatic focus involves speaker-hearer factors such as emotion and surprise.

Information structure concerns the way new information is related to old and the rate at which new information is introduced into the discourse. New information is commonly connected to given information by connectives, affixation and repetition. Each grouping in the grammatical hierarchy has patterns for introducing new information. These grammatical constructions also have information value, i.e. certain constructions are preferred for conveying certain types of semantic content.

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PROMINENCE

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KINDS OF PROMINENCE

I. Syntagmatic (thematic) Prominence

The topic under discussion, in contrast with concurrent background material.

A. Development Themes:

discourse plot, main thread
paragraph development, thematic script thread
sentence propositional development

B. Conceptual Themes:

discourse concept theme, author's purpose

II. Paradigmatic (thematic) Prominence

Prominence by selecting one out of a possible set of items or actions. The participant theme is the participant most subject to pronominalization or zeroing.

A. Participant Themes:

discourse hero
paragraph topic, focus
sentence subject
clause topic
noun phrase head

B. Other Paradigmatic Choices

III. Slot (structural) Prominence

Normal peaks, in sequence with (and contrast with) troughs. Nucleus vs. margin. The surface peaks usually, but not always, correspond with semantic peaks.

A. Individual Tagmemes:

discourse climax, denouement
paragraph peak (episode peak)
sentence main clause (main action)
noun or verb phrase head

B. Nuclear Strings

nucleus (vs. periphery) on all levels

IV. Special (emphasis) Prominence

Superimposed ad hoc peaks or interruptions, in contrast with normal peak-trough structure.

A. Plot cruxes, crucial details

B. Contraexpectancies

C. Interpolations of narrator's feelings

PROMINENCE DEVICES

1. Degree of position markedness; the first or last position in a construction and the first participant are usually most marked. This seems most true on sentence to discourse levels.

2. Rate of progression of events. Motion attracts attention.

3. Degree of specification. Specific names, direct quotations, narrow-focus nouns and verbs, or nouns with relative clauses are most marked. Concreteness gives prominence.

4. Degree of evaluation. Strong evaluation, whether good or bad evaluation, heightens prominence.

5. Degree of contrast. Contrast with opposites increases prominence.

6. Degree of information concentration. The crowding of stated or implied information into a few words draws attention.

7. Repetition. Repetition gives prominence. Repetition may be spread out through a discourse as a reminder of prominence.

8. Rhetorical underlining. Features of poetry or eloquence which differ from normal prose often give prominence.

9. Suspense or surprise, unexpectedness.

10. Conjunction of two or more themes (hero, events, concept) at a single point.

11. Degree of activity. An active description is stronger than an inactive state. An active verb draws more attention to an action than does a passive verb or a descriptive adjective.

12. Special words or particles may be markers of emphasis.

13. Structural prominence: discourse theme, climax slot, etc.

14. Dummy verbs or nouns may be used to put another verb or noun in prominence (cf. cleft sentences).

15. Prominence.

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SUGGESTIONS ON WRITING PAPERS

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Those interested in the topic of "Presentation of Papers" may refer to the hand-out "Guidelines on oral presentation of papers", by George Huttar. Because that hand-out is self-explanatory I propose to spend our time this session discussing the writing of papers.

Writing of Papers.

To facilitate discussion later on, I have arranged the material under the following five headings:

1. Motivation for writing papers
2. Intended or likely readers
3. Presentation
4. Content
5. Ramifications

1. MOTIVATION FOR WRITING PAPERS

The following different motivations come to mind:

a. Preservation of linguistic material

b. To gain standing in the academic world (for oneself, or the Corporation, or both)

c. To provide ourselves with academic credentials that might open the doors to hitherto closed countries

d. To stimulate the author towards a more comprehensive understanding of the language structure.

e. To provide a reference standard for the checking of subsequent translation

f. Because the Branch requires it

g. For the fun of it

h. Personal encouragement for a job completed successfully

a. Preservation. This is a worthwhile aim, but we must take care to ensure that information about language structure is readily accessible to readers. It would not be sufficient to publish large bodies of unanalysed text alone, nor desirable to publish a large inventory of inter-related technical formulae. Both these extremes obscure pertinent language information. We shall have more to say on this later.

b. and c. The desire for academic standing is a defensible aim, I believe, only when combined with some higher purpose - such as to open doors to countries. We have not been called to glorify ourselves, but to serve others. So if we write papers merely to maintain our academic credentials, that alone is a sufficient motivation for continuing to do so.

d. This is, I feel, the most important motivating factor of them all; and probably the least appreciated one amongst our membership.

Ideally, when preparing a paper, the author is committed to a very high standard of thoroughness and clarity in the presentation of his material; so that the process of organizing and writing of a paper often reveals gaps, hitherto unrecognized regularities, poorly understood areas, further avenues of study, and so forth. This makes, or should make, such an activity a very valuable learning process for the author. Of course, not only the investigator himself benefits, but his readers do too since a better paper will result from his further researching in the language.

e. The investigator may discover generalities that, while important, are used in translation only rarely. Often he fails to internalize such information. The paper then functions to ensure that the information is readily accessible for translation and for checking.

f. Unfortunately, for some this is the only motivation for writing a paper. I suspect that the main reason for this is that such people find that they cannot readily use what they have produced as an aid in translating. There are probably several reasons for this, and I will mention what I consider to be two of them.

Firstly, the historical bias towards a 'model' has resulted in people presenting the language structure in terms of symbols and formulae. Instead of aiding comprehension, for many it has served only to obscure it.

Secondly, the historical preference (at least for S.I.L. members)

for a global description, using a model, has militated against a thorough investigation of "subsystems" or "topics" pertaining to the language. Particularly when such topics correlate with important semantic contrasts, the failure to study them in depth alienates the description from a useful role in the translation process.

2. INTENDED OR LIKELY READERS

Here I wish to consider the answer to the question "To what extent, if any, should the presentation and content of a paper or monograph be determined by the research interests currently in fashion with the intended readers?" Do we "do our own thing" and hope for a publisher; or do we deliberately cater to the interests of others?

We need to distinguish between papers written for the linguistically trained (that is, those that would appear in linguistic journals or monographs), and papers written for those unskilled in linguistics (that is, for educators, or government workers, etc.).

For the latter group, lack of linguistic ability or training on the part of the readers necessitates that the author gear his material and his presentation to the needs and interests of his readers. I think we all know the principles involved here, so I will not now spend further time on it.

In what follows, I shall be considering only papers intended to be read by linguists, or those having linguistic training.

In the decades before the Chomskian revolution, our aims and those of professional linguists were in fairly good agreement. Little

was known about non-Indo-European languages, and there was an emphasis on discovery and description. Linguistic models owed their importance to their usefulness as vehicles of description. This was a fortunate state of affairs for S.I.L. Because of our aims we had intimate personal knowledge of hundreds of languages previously unstudied; so as sources of data we were of value to academics. Furthermore, armed with Pike's model, we were in a position to take our place in academic circles as theorists in our own right.

However, times have changed. Since the Chomskian revolution, emphasis has shifted on to generative models of language structure, and since these are proving difficult to construct, much attention is given in the literature to theoretical problems associated with such models. Consequently, interest in minority languages has waned somewhat, unless of course new light is thrown on the theoretical aspects of models by studying yet more of the world's minority languages. Tagmemics itself has been under attack in the literature from time to time, and it apparently has lost a lot of prestige, deservedly, in my opinion.

To illustrate this latter point, one should read Rodney Huddleston's excellent review of the *syntagmeme* concept in ***IJAL***, Vol. 37, No. 1, 1971. And to illustrate the former point, let us review the publication requirements of a few of the prestigious journals:

Journal of Linguistics:

"...Preference is given to articles of general theoretical interest."

Language:

"...carries technical articles dealing with problems of linguistic science,..."

Language in Society:

"... Preference is given to contributions of general theoretical or methodological interest."

Foundations of Language:

"...invites general or technical contributions, original or expository, in fields of research dealing with language and the foundations of its study."

International Journal of American Linguistics:

"...will also publish theoretically contributory papers concerned with languages from other parts of the world, but continue to give primary emphasis to the languages of native America."

The preoccupation with theory is evident. To ensure that linguists will be interested in our studies, we need to do more than merely describe - although this in itself can be valuable to others if properly done. The principle by which we should be guided is that whenever possible, the material should be researched, organized and presented in such a way as to have maximal relevance to contemporary issues, with a minimum of effort required by the reader.

Of course, some softening of this principle may be necessary because our goal is not *specifically* to advance linguistic theory.

What I mean by "with a minimum of effort required by the reader" should become clearer in our discussion of Presentation.

3 RESENTATION

Here I shall try to formulate some guidelines for the presentation of linguistic material.

a. Global versus non-global descriptions.

Models tend to interrelate differing aspects of a linguistic description. For example, this is taught and represented explicitly in the hierarchic formalism of Tagmemics - for if one were studying Tagmemic formulae to gain an understanding of a language's noun phrases the same set of formulae would be making explicit claims about verbs, case markers, deictic elements, and so forth. Tagmemics, then, has lent itself particularly well to global descriptions because of the formal difficulty of isolating a level, a constituent, or perhaps a topic of interest, from the rest of the description. This is true of course for other models too. For such a description, two problems arise for the reader who uses the paper as a data source. Firstly, the information he is seeking is likely to be scattered throughout a large section of the paper, so that getting it all together is a monumental task. Secondly, he is forced to process a lot of information which is, to him, irrelevant for his purpose at the time.

A further problem with global descriptions is the conflicting demands made by the need for globality of description vis-a-vis appropriate attention to linguistic detail. By their very nature, global descriptions are bulky, and the price one must pay is to omit detail. Often, however, it is the details that readers are primarily concerned with.

Another problem with global descriptions is that they are concerned largely with what is the "norm" for the language. Exceptions and difficulties, while noted, are rarely discussed at length or made the focus of attention. However, it is precisely such exceptions and difficulties that are at the core of much linguistic investigation today - for it is they that usually show up any problems with the posited norms, and thereby potentially contribute to a theoretical advance. If we, as S.I.L. field workers, are committed to globality of investigation, we need not feel similarly bound with respect to our presentation of language material. In fact, if we find we can contribute to a theoretical problem, then we should keep our data to the minimum required in order to exemplify our point. On the other hand, if our paper is non-theoretical, our aim should be thoroughness - with as much attention to difficulties and irregularities as time and space permit. However, it is a mistake to assume that every idiosyncracy in the language must be published. Some are bound to be relatively trivial, and so could be omitted. As a guideline, I suggest that those having semantic interest, or revealing limited generalities, should be presented.

In its strongest form, I am suggesting that the author of a paper is better likened to an editor than to a reporter. That is, it is better that he chooses from his material that which is likely to be important to others, than that he merely reports all that he knows.

b. Formulae or no formulae

Formulae, while making structure fully explicit, also present difficulties of comprehension for the reader - especially when the number of such formulae exceeds a few. To many people, formulae only succeed in veiling structure and so defeat the aim of the writer. Moreover, many have written excellent papers with few formulae or none at all. This raises the question of whether formulae are really necessary or not. Incidently, I am also classifying as "formulae" charts - bi-dimensional arrays (slots horizontal and fillers vertical) as presented in Tagmemic grammars as an alternative to the older Tagmemic formulae (that is, S:NP etc.). I lump them together because as far as I can see, a Tagmemic chart is as much an abstract formal descriptive device as is the traditional formula. Neither is significantly easier to understand than the other.

Concerning technical devices in general, my view is that the onus is on the author to communicate the language structure to his readers with a minimum of effort on their part. Consequently, when formulae serve this purpose better than, say, prose, he should use them. In fact, he should use charts, formulae, paradigms or any other device that does the job effectively. There are, however, some constraints on this principle. Firstly, he must introduce as few "new" formal descriptive devices as possible - ideally, none at all. Also, any new devices must be fully defined. Secondly, if he uses terms from a linguistic theory, he should use them only in a manner which is consistent with that theory.

c. The problem of validation

It is possible in many instances to construct two, or more, different descriptions of the same set of data. Which then is correct? How do we validate one in favour of the others? Traditionally, there are two ways of doing it.

Firstly, one may say "Model X handles it this way, so this must be the correct way." To give an example: even if one wanted to, it is not possible to write a Tagmemic description that doesn't involve grammatical functions, for the tagmeme is defined as a form-function composite.

Alternatively, the other way is to gather together all the data in the language relevant to the problem at hand, and by careful systemization, comparison and hypothesis, decide that the linguistic facts favour one description above the others. Having decided what the correct analysis is, if the model one wants to use proves to be unable to handle it adequately, then either the model is to be changed, or abandoned. It is this second means of validating an analysis that has been strongly preferred.

When a language is being described in print, it is often only the conclusions about the structure that the author presents. However, very often the most revealing information about the language structure is communicated by a description of the validation arguments used in arriving at those conclusions. This is probably why the current emphasis is on theoretical discussion rather than formal rules.

If then we adopt this second means of validation as our principle, or modus operandi, then we ought to make our linguistic validation criteria an integral part of our paper or monograph.

d. Topical presentation

If we wish to avoid the use of formulae as much as possible, how may we go about it? My suggestion is that material be presented according to topic. Things like Noun Phrases, Verb Phrases, Sentences, Affixes, Case, Modals, Reflexivization, Embedding, Aspect, Tense, etc., could be discussed in whatever detail the topic warrants. Of course, the list can be made as long as one likes, but that doesn't necessarily mean that the resulting paper or monograph will be a jumble of unrelated topics. If properly handled, the final result can be very illuminating. For example: as part of a lecture course, the instructor presented the fruits of his analysis of the English verb system. Some of his topics were as follows: classification of the verbal group; inflexion; verb categories; historical approaches to verb classification; auxiliaries; homonymity; overdifferentiated paradigms; mood, tense; validation arguments for a two tense analysis of English; validation arguments for treating would as past tense of will, in English; validation arguments for treating the English mood contrast as Real / Unreal; aspect; definiteness of past tenses; concord; person; number; other deictic elements; epistemic and non-epistemic uses of the modals, ... and so on.

One can't fail to be impressed by the comprehensiveness of the material, the large number of categories or topics that he found to be relevant to a discussion of the verbal group. The presentation was structured as well. All the necessary concepts were defined and discussed in advance of their being used in the discussion of another topic. The resulting analysis obviously contained a lot of important information about the structure of the English verbal group, and about the semantics associated with the various topics. Clearly, his analysis was not global, rather he aimed at a thorough treatment of just one part of the language. Moreover, if he were a translator, his analysis would be extremely useful for translation purposes. I believe we could give far more attention to this form of presentation, writing far better papers as a result.

4. CONTENT

Under this heading I wish to briefly mention the implications of the material discussed under 3. Presentation, insofar as it affects the way in which we analyse languages, and the contents of the papers we write. These two things are of course related. The way people go about their language analyses on the field is inevitably reflected in what they write.

To stimulate discussion later, the following are some questions for which we might seek answers:

(a) To what extent is a global description necessary? If it is necessary, can it be segmented for publishing as smaller

portions without loss of detail? Is a topical presentation the ideal way to achieve this, or is there a better way? Would the adoption of a topical presentation necessitate a radically different approach to linguistic analysis on the field?

(b) Should symbolic devices be avoided? I am not suggesting that symbols be avoided - that would be foolhardy, but rather that the use of complicated constructions comprised of such symbols be minimized. In essence, what I am asking is whether we should regard formal devices (rules, formulae, etc.) merely as a means to an end, or as an end in themselves?

(c) Should we retain a high degree of commitment to a theory when that theory posits linguistic structures that cannot be given independent linguistic motivation? I see the following problem here. If we analyse using concepts which lack a sound linguistic motivation, then the structure we "discover" may in fact not really be "there" at all. The dual structural criterion is a central concept of higher level Tagmemic theory, yet little has been done to try to motivate it linguistically. Moreover, in the literature it has been subjected to a very convincing criticism. Yet people continue to use it uncritically, as if its status is

as well-attested as that of the morpheme. What I am claiming is that overcommitment to a theory may prove to be highly detrimental to a revealing analysis of a language.

(d) If validation is important, should there be more attention given to it in fieldwork? That is, rather than the field worker simply storing the conclusions of his analysis, should he not also store the linguistic criteria that validate his conclusions?

5. RAMIFICATIONS

a. Training of members in linguistic analysis

At present, the emphasis is on teaching the field worker to be reasonably proficient using one model - usually Tagmemics. The aim of courses is only secondarily to develop a student's linguistic intuition and ability. I feel that these ought to be reversed in priority. Barbara Hollenbach has developed a course outline for a first year S.I.L. course that aims apecifically at developing the student's general linguistic abilities, without getting too bogged down with the details of one particular model.

b. Grammar consultants

Someone would need to keep abreast of current linguistic issues if member's papers are to have a contemporary relevance. Ideally, the translator himself should do this, but it is clearly too high an

ideal for the majority. It is, however, something that consultants could do, or perhaps it could be made the province of a few specialists who could then work in collaboration with the field worker.

DEFINITION

Throughout this paper, by *model* I mean not the well-attested ways of viewing language structure (e.g. immediate constituents, morphemes, phonemes, etc.) but rather the symbolic abstract constructions (e.g. rules, formulae) that various school of thought use in order to map *discovered* structure onto surface forms.

DISCUSSION

1. Motivation:

Dick Loving suggested that a further motivation for writing papers is to have the personal satisfaction of a job completed successfully. Sally Dye pointed out that this can be a very encouraging factor for someone experiencing frustration due to long lengths of time spent in seemingly unproductive language analysis. George Huttar pointed out that a further motivation is to write "for the fun of it". He also stated that a far better paper is likely to result from such a motivation.

2. Intended or Likely Readers:

Dave Thomas suggested a list of priorities with respect to the

different audiences to which we address our papers: firstly ourselves, then the rest of the branch, then others in the country, then area specialists, and lastly the outside linguistic world. Bruce Waters claimed that if we write a maximally useful paper for ourselves, it will at the same time be relevant and useful to the outside linguistic world.

3. Presentation and Content:

Sally Dye challenged the necessity of the *publishable grammar* requirement of the P.N.G. branch. Several people entered the discussion at this point. It was pointed out that many people regard the production of a grammar paper as a necessary evil - and have no interest in it other than getting it done as quickly as possible in order to get on with "more important things".

Bruce Waters suggested that a reason why such people find the grammar paper of little relevance for translation was because people were writing descriptions primarily in the realm of the grammatical hierarchy, to the exclusion of the semantic hierarchy. He suggested that if a lot more attention were paid to semantics (i.e. semantic contrasts and their realizations within the grammatical hierarchy) in the grammar paper, then the final product would be very useful for translation purposes. Sally Dye and Dick Loving discussed the issue of *pressure* on people to write and publish due to the *publishable grammar* requirement. Sally felt there was, in general, too much overt pressure, and that just being in the Group was sufficient. Dick felt

that to relax the requirements entirely could be counter-productive. Bob Litteral felt that most people need *some* pressure in order to more quickly attain goals. Dave Thomas explained how in the MSEA branch, people were motivated to write by being shown the books that *ordinary* people within the branch had produced - with some editing help from Dave himself. Their reaction was, "I would love to do that if only I could!" By being shown what others were able to do, they were encouraged about their own capabilities.

Bob Litteral agreed that models can be a hindrance, and commented on the lack of typological features in S.I.L. papers on language structure. He believed that the inclusion of typological notes would be an improvement for papers generally. Brian Ezard agreed, and cited how he once tried to get an overview of the typology of languages in his area, and found that all the relevant data in the literature was "steeped in technical forms", hindering his attempts at comparison most effectively. Bob Litteral suggested that one way of making sure that a paper has contemporary relevance would be to take account of the current interest in language universals. Authors could relate their findings to the posited universals put forward by others. George Huttar suggested using Greenberg's postulated universals in word order (1966). Ann Cochrane and Bob Litteral both felt that the inability of some people to write and work without a model is a problem that has its source in the teaching at S.I.L. schools. They felt that teachers should emphasize insight along with the mechanical application of procedures. Dick Loving felt that to dispense with a

model is asking too much of many people, since often it is "all they have got" by way of linguistic insight and procedural methodology. Bruce Waters replied that the role of the consultant is crucial. Such people may need a lot more guidance from the consultant, at least initially.

Cindi Farr mentioned the problem of publishing in P.N.G. where there is pressure (by way of Nationalism) for co-authorship with nationals, and a presentation that enables them to read it without difficulty. She felt that to achieve this, we would need to make our linguistic discussion very low-key with respect to formal devices and symbolism. George Huttar challenged this on the grounds that basic linguistic concepts and technical terms are unavoidable if one wishes to make significant statements about language. Anne Cochrane felt the topical approach is a viable and valuable approach for non-theoretical papers, and also for translators with a limited theoretical background.

Dave Thomas felt that Tagmemics was being misrepresented as merely a set of formulae. He also suggested that the labelling of terms in a formula be accomplished in such a way that the reader can guess at their meaning without having to refer to a glossary of abbreviations repeatedly. Overlong or overshort labelling was to be avoided. This makes formulae much more readily readable. Dave also pointed out the need for both a description of specific areas, and a global description. Les Bruce pointed out the need for some kind of topical *grid* to be used as an aid in the discovery of structure. It

was suggested that Dave Thomas's book *Notes and Queries on Language Analysis* was ideal as a starting point.

SOME FURTHER COMMENTS

Some people later commented that they gained the impression that I was criticizing Tagmemics in order to favour Transformational Grammar. I had no such intention. I used Tagmemics because members are familiar with it, and so I could expect them to more easily grasp the point of what I was saying about models in general. I was using Tagmemics only by way of example. I could equally well have used Transformational Grammar as an example, and in many cases it would have proved even more apt than Tagmemics. I should point out that every model has led to significant insights about language (e.g. phoneme, deep structure, roles, transformations, etc.), and to that extent they are invaluable. Ideally, the more that one knows about them, the better. George Huttar pointed out that it is often only within the theoretical viewpoint of a certain model that one may make a certain type of testable typothesis about linguistic structure.

George also believed that my characterization of the average professional linguist as one who would prefer an informal presentation, is probably an oversimplification. There are many who prefer a formal technical description presented within the framework of a particular model. This, I agree, is probably indisputable.

REFERENCES

Greenberg, J., 1966. *Universals in Language.* Cambridge: MIT.

Hollenbach, B., 1973. A Proposed Syllabus for a Course in Beginning Grammatical Analysis, Workpapers SILUND.

Huddleston, R., 1969. Some Observations on Tense and Deixis in English English, *Language* Vol. 45, No. 4.

I regard this article as ideal for exemplifying some of the points mentioned in this paper. He writes with a topical presentation, employes a minimum of rules, refers to contemporary issues, uses validation arguments as an integral part of his presentation, and gives a lot of attention to informal discussion of semantic contrasts and their syntactic correlates. It should be noted though that his validation arguments rely heavily on the native speaker intuitions of his readers. For S.I.L. members writing on languages which they have studied on the field, this kind of validation argument is not possible. In such a case, the native speaker intuitions that are relevant will have to be spelled out for the reader in the text of the paper.

_____, 1971. The Syntagmeme, *IJAL*, Vol. 37, No. 1.

It should be pointed out that in this article Huddleston is not claiming that the concept of a syntagmeme is lacking in linguistic motivation. Rather, he is claiming that the dual structural criterion lacks such motivation. Consequently, Tagmemics does not yet have a well-motivated criterion for deciding which syntagmas should be combined into the one syntagmeme.

Oltrogge, D., 1974. A Sketch of Mayan Languages, Work Papers SILUND, Vol. 18.

Thomas, D., 1975. Notes and Queries on Language Analysis, *Language Data*, Asian-Pacific Series 10. Huntington Beach: S.I.L.

Wise, M. R, and H.G. Green, 1971. Compound Propositions and Surface Structure Sentences in Palikur (Arawakan), *Lingua*, Vol. 26, No. 3.

This paper is an attempt to deal with both semantics and syntax in the one paper, and to map the semantics (in terms of relations between propositions) onto surface structures. Such a treatment may prove more useful for translation purposes.

Wurm, S., 1972. *Languages of Australia and Tasmania.* The Hague: Mouton.

This reference, and the paper by Oltrogge cited above, are examples of a typographical presentation.

WRITING AND CHECKING

David Thomas

Summer Institute of Linguistics

A. Hints for Technical Writing

1. Follow a suitable general outline.
2. Make each new angle or topic a new paragraph. Begin the paragraph with a lead sentence indicating the topic or direction of the paragraph.
3. Start positively--identify, label, and state clearly what a thing is before saying what it is not.
4. State things firmly and confidently. Never be apologetic for a decision made. Wishywashiness is irritating. Once a decision is made, stand by it.
5. Use specific concrete language and short examples. Short (minimal) specific cases are more readily grasped than involved abstract definitions.
6. Cut away needless words, so that what remains will stand in bolder outline.
7. Use parallel wording for parallel situations.
8. Use the same word for the same meaning. Avoid synonyms.
9. Move parenthetical phrases to the beginning or end of a sentence to avoid breaking the clarity of the sentence. Keep related words together.
10. Check the antecedents of all pronouns and relatives.

11. Keep to one tense throughout.
12. Revise and rewrite.
13. Avoid superlatives. Do not overstate.
14. Avoid fancy words and technical terminology. Use simple Anglo-Saxon as much as possible.
15. Do not take shortcuts at the cost of clarity. Be careful in using initials and abbreviations.
16. Be sure that the main point in a sentence stands out as the main point. When adding qualifications, it is often better to break the sentence into two sentences, so that the main point still stands out clearly, not buried in a mass of details.
17. Be thorough. All statements and formulas must mean exactly what they say.

B. Different Criteria of Excellence

1. Interesting topic
2. Readable style
3. Mathematical elegance

C. Hints for Checking Manuscripts

1. Does the title fit with the main section headings?
2. Do the subsection headings fit the main section headings?
3. Does the first sentence of a section introduce the topic implied by the heading?

4. Does the first sentence of each paragraph highlight the topic of that paragraph?
5. Is there any parallel head-head linkage between paragraphs?
6. Is every sentence unambiguous?
7. Check each formula, chart, rule, and definition against the examples to make sure that it really means what it says. Query any possibilities allowed by the formula (etc.) which are not found in the examples.
8. Check that each paragraph really belongs in the section where it is found.
9. Cross-check related definitions to make sure they don't clash.
10. Any time you spot a potential problem (1-9 above), suggest an alternative wording.

D. Steps in Analysis and Writing (based on K.L. Pike)

1. Act on your hunch.
2. Jot it down fast.
3. Study the jotting, analyse it.
4. Reorganize logically:

   Balance

   Fill out thin spots

   Illustrate

   Contrast

   Make matrix or tree diagram (leads to outline of paper)
5. Check the data and test the hypotheses.

6. Gather necessary further data.

7. Rewrite.

SUGGESTED REFERENCES

Flesch, R., 1949. *The Art of Readable Writing.* New York: Harper.

Fowler, H.W., 1965. *Modern English Usage.* 2nd ed., rev. by E. Gowers. Oxford: Clarendon.

Gunning, R., 1952. *The Technique of Clear Writing.* New York: McGraw-Hill.

Strunk, W. and E. B. White, 1959. *The Elements of Style.* New York: Macmillan.

University of Chicago Press, 1969. *A Manual of Style.* 12th ed., rev. Chicago: U. Chicago Press.

Wares, A. and I. Wares, 1974. *Punctuation, Proofreading, and Printing: How to Prepare a Manuscript for Publication.* Mexico: S.I.L.

GUIDELINES ON ORAL PRESENTATION OF PAPERS

George Huttar

Summer Institute of Linguistics

(1) It is safer to assume too little of your audience than too much. (Remember they are probably sleepy or thirsty, and at any rate don't know your data inside out like you do.)

(2) Err by having too little content rather than too much.

(3) Have only 1-3 important points and know what they are. Mention them all at the outset, repeat each one as you make it, and mention them all again briefly at the end.

(4) Know more than you say, don't say all you know - or more than you know! - about the topic.

(5) Don't keep silent on unsolved aspects directly relevant to your main points. Mention the problems so audience knows you are aware of them, admit you have no satisfactory solution, solicit their suggestions, and move on. If you don't mention the problems, they will.

(6) Feel free to read from a prepared script, but (a) be sure you have written the script in spoken style; (b) restore eye contact frequently - and with the audience, not the ceiling or the floor!

(7) Prepare a handout (vital for almost every paper) which is clearly divided into numbered items for easy reference. When referring to the handout, pause or repeat yourself or otherwise give audience time to find their place in the handout. Label the various charts, examples etc. on the handout so that (a) the audience sees why you have included a particular item on the handout, and how it relates to the point(s) you are making; and (b) the handout will still make some sense weeks later without your talk to go with it. Include on the handout a statement of your main points - together at the beginning is a good place, so you can refer to the beginning of the handout at the beginning of your talk. (See (3) above.)

(8) Present the paper ahead of time to someone not familiar with the topic. Let them tell you where they get lost. Let them time you.

(9) Pretend you are the audience. What questions would you ask the speaker (and, as speaker, how would you answer them?)? Having heard the paper, can you say what is interesting about it?

(10) Although there may be some arrogant Christian scholars, I believe most S.I.L.ers are more likely to be too timid than too dogmatic about their claims. Be frank about what you know you don't know, but don't be apologetic about it. Nobody in the audience is omniscient either. If what you have to say is not worth saying,

you should not be giving a paper. If it is worth saying, then say it with confidence. Chances are very high that you know more about your data than anyone in the audience (except your co-author).

(11) Handling questions: (a) Be prepared for some of them through points (8) and (9) above. (b) If a point is raised that fairly clearly casts doubt on one of your conclusions, then thank the questioner for pointing that out, scribble a note to yourself about it (and make it obvious that you are doing so), and say something like, "I (obviously) had not considered that point/those data in reference to _____ (whatever area you are discussing). I'll have to have a closer look at that and see how it fits in with the evidence I have considered. Perhaps we could get together on it after this session."

CONSULTING

David Thomas

Summer Institute of Linguistics

A. General Branch Philosophy

1. The main function of a consultant is to help the linguist with his work. His main job is to lead and encourage the linguist, not to judge his work.

2. Use a sliding scale of acceptability for publication, not a rigid standard. Papers by less experienced or less capable members should not be expected to be as insightful as papers by more experienced members.

3. Every member can write publishable articles. Some members will need more help, others less.

4. There is no article for which an outlet cannot be found or made. (In Vietnam this entailed starting the *Mon-Khmer Studies* series.) Seldom, if ever, should an article find its final resting place in a file.

5. The main consulting load can be carried by medium-level turned-on consultants. Advanced degrees often help but are not essential.

6. What the academic world mainly wants, expects, and needs from S.I.L. is facts, the more the better, on the minor languages of the world. We are the major, and in most cases the only source of such information, and this is our area of greatest competence, so let's emphasize it. Be thankful for those in our midst who also make theoretical advances, but push the large-scale publishing of detailed language facts.

7. Advertise branch achievements anywhere and everywhere, deliberately cultivating a spirit of confidence and pride.

8. Emphasize the interrelation and mutual dependence of linguistics, translation, literacy, and anthropology.

B. Consultant Attitudes

1. A consultant is a helper. Any member can be a helper, whether formally or informally. Be a boy scout, not a traffic policeman.

2. Encourage the consultee with praise and sympathetic encouragement. Morale is usually the biggest problem, not lack of ability.

3. Take the viewpoint of a naive outsider, questioning points that are not clear or assumptions that are unstated.

4. Lend an unhurried listening ear. Often a consultee will solve his own problem just by carefully verbalizing it.

5. Suggest specific alternatives or restatements. Brainstorm the problem with him.

6. Help the consultee organize the paper into a clear coherent outline. Organization is half the battle of writing.

Some references

Johnston, C., 1975. Consultants. *Philippine Technical Memo* No. 36, July 1975.

Thomas, D., 1966. Suggestions on consulting. *SILUND Workpapers* 10: 13-14.
Also in *S.I.L. - P.N.G. T.S. Handbook*, Section 4.6.2.

C. Manuscript Roles and Responsibilities

1. Author

   a. Decides the contents of the paper

   b. Responsible for the accuracy of the data

   c. Makes ultimate decisions on wording

   d. Responsible for typing clean copy, double-spaced, wide margins, no strikeovers

2. Consultant

   a. Checks the reasonableness and consistency of the analysis

   b. Checks for consistency of terminology and abbreviations

   c. Checks accuracy and generativeness of formulas

d. Checks conciseness and clarity of the writing

e. Checks clarity and appropriateness of charts

f. Checks number and clarity of examples

g. Aids the author in resolving points 1-6 above

3. Branch Linguistic Chairman (or T.S.D. Chairman or Manager)

a. Checks that format and content are such as would be acceptable to the intended editor (or suggests editors that would be interested in the content and format)

b. Sends manuscript to editor with his recommendation

c. Handles ordering of reprints (often through Huntington Beach)

4. Editor-Publisher

a. Accepts or rejects manuscript (or he may accept it conditionally, requiring certain revisions)

b. Decides on layout, type faces, underlining, adds prefatory material

c. Sends to printer, receives back proofs and final copies

d. Handles proofreading, either doing it himself or sending it to author

e. Pays all bills, receives all income

f. Distributes the finished product

Occasionally some of these roles are combined in one person, but generally there are these four distinct steps.

D. Some Profitable Topics for Forums

1. Presenting your current research
2. Presenting someone else's research or article
3. Summarizing a field of research or study
4. Presenting a former article of yours
5. Presenting some current or past theory of your own or from the literature
6. Discussion of scriptural/theological relevance to philosophies, theories, applications of linguistics
7. Discussion of translation, literacy, anthropological applications of linguistics
8. Forums where all translators present share what their languages have on a certain point of structure
9. Discussion of translation theory and applications
10. Simplified introductions for non-linguists
11. Presentation of a completed workshop project

E. Profitable Audience Participation

1. I didn't understand point X.
2. I disagree with point X.
3. I agree especially with point X.
4. I will elaborate on point X.
5. I will present further arguments for point X.
6. I will restate point X in different terms.
7. What the main point is that the speaker is trying to get across.

8. Why the speaker wants to convey his main point.
9. How the speaker went about making his point. Examples and pitfalls.
10. Underlying assumptions of the speaker.
11. Further illustrations of the main point.
12. Wider applications or ramifications of the main point.
13. Draw a tree diagram of the author's results.

F. Goals of Workshops and Seminars

1. Completion of a specific project
2. Mutual stimulation and cross-fertilization
3. Acquisition of fresh theories and approaches
4. Increased familiarity with the literature