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Georgetown University
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REPORT
OF THE SEVENTEENTH ANNUAL
ROUND TABLE MEETING
ON LINGUISTICS
AND LANGUAGE STUDIES

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FOREWORD

For the past seventeen years, Georgetown University's annual Round Table meetings have brought together scholars in the field of linguistics and allied subjects to report on their latest findings and discuss the problems they have in common. This year's sessions, held March 25th and 26th, 1966, resulted in the papers reprinted in this present monograph.

The panels, in accordance with the now traditional format of the sessions, were three in number, each with four speakers. They dealt with problems in semantics, with the history of linguistic study and with aspects of English. In addition, the luncheon speakers gave stimulating insights into the relations between linguistic study and anthropology, and linguistic aspects of sign languages.

It is hoped that this broad range of topics gives promise of a greater range of interest in linguistic studies, and of an increase in tolerance for different models for the description of languages than has been customary in the field of linguistics in the past years. In particular, it is to be hoped that concern for the continuity in the field of language-study, rather than zeal for the latest linguistic fashion, will provide a basis for interest in the findings of linguistic work among scholars of humanistic background.

**Francis P. Dinneen, S.J.
Editor**

WELCOMING REMARKS

REVEREND FRANK L. FADNER, S. J.

Regent, Institute of Languages and Linguistics
Georgetown University

Ladies and Gentlemen, Colleagues, Participants and Guests
at Georgetown University's Seventeenth Annual Round Table Meet-
ing on Linguistics and Language Studies:

I suppose that in the last analysis it is man's innate curiosity
in the awesome expanding universe of the renaissance in which we
now live--that human propensity and flair we are said to share
with Satan himself, for constantly mouthing the question 'Why?'--
that explains the singular success enjoyed by these annual
gatherings sponsored by this Institute since its foundation almost
a score of years ago.

Habitués, old faces in the congregation, cannot fail to be im-
pressed by the gamut in our annual considerations of human lan-
guage, and the science that has grown out of is observation.

The range has been everything from our country's desperate
need for intelligent language learning, the relation of linguistic
science to educational psychology and classroom guidance, anthro-
pology and the humanities, valuable speculation on meaning and
language structure, the technicalities of machine translation, as
well as the implications and possibilities of bilingualism--and
bureaucratic contrived speech here in the nation's capital.

There seems to be no end to the possibilities; we may one day
in this very room listen to learned papers on intelligent speech
from outer space.

For the moment, as a prosaic historian I am content to note

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at least one session is being devoted this year to the history of Linguistics--a backward glance at the record.

I feel sure that the serious and solid citizens responsible for these discussions will not yield to the cynicism of Jakob Burckhardt (1818-97) who, I think it was, maintained that 'the only thing that history teaches us is that history teaches us nothing'. We shall rather be inspired by the sentiments of a Winston Churchill who saw a sense of history as absolutely necessary to an understanding of the problems of our time--the past as prelude to the present, and the future of a brave new world.

In the name of the President and the Board of Directors of Georgetown University, I extend a hearty welcome to you all. May the Almighty Father of us all inspire us in these days of thoughtful deliberation. That is the enthusiastic wish of your hosts in these halls.

WELCOMING REMARKS

DR. ROBERT LADO

Dean, Institute of Languages and Linguistics
Georgetown University

Friends:

As you know, the papers and discussions of the Georgetown Annual Round Table Meeting on Linguistics and Language Studies are published in the Monograph Series on Languages and Linguistics. The proceedings of this the Seventeenth Annual Round Table Meeting will appear as Monograph number 19, edited by Rev. Francis P. Dinneen, S.J., Chairman of the Round Table.

The numbers of the monographs and of the annual meetings do not coincide for two reasons: the first round table meeting, which was held in 1950, was not recorded and the proceedings were never published. Monograph number 1 contains the proceedings of the Second Round Table Meeting and is dated September 1951. All other Round Table meetings have been reported in separate monographs. In addition, monographs 3, 5, and 6 do not contain material from the Round Table meetings.

We are pleased to report that monographs 1, 2, 3, and 8, which had been out of print, have been reprinted this year by the Kraus Reprint Corporation of New York. The entire series is thus again available.

It seems proper to point out that the Annual Round Table Meeting is entirely supported by Georgetown University, the participants, who contribute their time and papers, and the audience, who come at their own expense. We receive no outside support for these nationally recognized linguistic events or the Monograph

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Series. And it seems fit also to say that we have not used these events as a forum for our own faculty but have been most anxious to keep offering this forum to the widest possible representation of scientists, scholars, and teachers in languages, linguistics and related disciplines. A reading of the roster of participants over the years shows clearly that we have maintained this policy with success.

Under the heading of news of interest to the participants, I reported last year the sad news of the sudden passing of the chairman of the Tenth Round Table Meeting, Professor Richard Slade Harrell, during his sabbatical year in Egypt. I can report that the painting of a portrait of him has been commissioned through the aid of private donations from friends of the late Professor Harrell and of the Institute. The portrait will be placed in the Nevils Building in appreciation for his contributions to linguistics and to Georgetown University.

This year I regret to report the passing of Professor Ruth Hirsch Weinstein Weir, editor of Monograph 5 and Monograph 8, the latter being the report of the Sixth Round Table Meeting, which she chaired.

The program of the Seventeenth Round Table Meeting promises an exciting array of papers on vital problems in linguistics, semantics and English. I welcome you most cordially to hear the papers and invite you to a most active participation in the discussions.

PANEL 1

PROBLEMS IN SEMANTICS

INTERROGATIVES IN PONAPEAN: SOME SEMANTIC AND GRAMMATICAL ASPECTS

J. L. FISCHER

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Interrogative words in Ponapean are of interest in that as a group they are semantically more complex and enter into a greater variety of constructions than do interrogative words in English and a number of other languages. This paper is a descriptive survey of Ponapean interrogatives. Ponapean is a Micronesian language spoken by the inhabitants of the island of Ponape in the Eastern Caroline Islands. Most of the features which appear unusual from the viewpoint of European languages could also be found in one or another of the other Micronesian and Austronesian languages.¹

Generally, 'an interrogative' means a word which indicates that the clause in which it is used, along with any dependent clauses, is a question; that is, that the speaker requests further information of some sort about the proposition, and that the information requested is of a certain kind. Most commonly an interrogative indicates which constituent of the clause requires further specification, although there are also interrogative words in some languages which indicate that an evaluation of the truth or falsity of the whole clause or larger construction is desired (e.g., Japanese 'interrogative particle' ka).

An alphabetical list of Ponapean interrogative words with English glosses follows.² Their morphology, meanings and syntactic function are discussed in greater detail later.

da 'what₁'

dahkot 'what₂'

dehn-, depehn- (plus personal possessive suffix or plus the construct suffix -en, 'of') 'what relation to'.

depe 'how many'

ed- (plus directional suffix) 'proceed in what way'

ia 'where'

iahd 'when'

ihs 'who'

keus 'who (second person)'

mehnda 'why₁ (with what intent, to what purpose)'

mehnia 'which'

paid 'and who else'

pwekida 'why₂'

It will be noted that some of the forms appear to be composed of more than one morpheme. A morphemic analysis is reasonably clear for the following:

dah-kot, from da 'what' plus -kot an element not occurring independently but also found as a bound form in meh-kot, 'thing'.

me-hn-da, also including da 'what' as the final element which is added to me, an indefinite pronoun translatable as 'something' (also used in combination with adjectives to nominalize them, and as a general relative pronoun translatable as 'who' or 'which' or 'that') plus the construct suffix -en 'of'; literally mehnda would seem to mean 'a thing of (or 'for') what', but it has an idiomatic meaning better translated as 'why', 'to what purpose', etc.

me-hn-ia, with first two elements the same as mehnda, plus ia 'where'; literally it would seem to mean 'a thing of where', but it has an idiomatic meaning better translated as 'which'; both mehnda and mehnia have corresponding two-word forms mehn da and mehn ia with different intonation patterns, which have something like the literal meanings indicated by the combination of their components, except that mehn ia usually means 'a person of where' or in idiomatic English, 'where is he from'.

pwe-ki-da, from pwe, a clause conjunction meaning 'for' plus ki instrumental verb suffix and preposition indicating agency or instrumentality 'due to', 'by', plus da 'what'; literally 'for - due to what', idiomatically 'why'.

ke-us analysis somewhat uncertain, but very possibly from second person singular intimate pronoun kowe (allomorphs ke and koh) 'you', plus ihs 'who'; *kowe-ihs might plausibly reduce to keus over time; the literal meaning would then be 'you (are) who', i.e. 'who are you'.³

Phonological similarity suggests that the pairs ia and iahd, depe and depehn- might also be related, the second of each pair being derived from the first. However, a comparison of apparently cognate forms in Trukese, a related language, suggests to me that these resemblances are accidental.

Less obviously, it may be noted that the forms depe, dehn- or depehn-, ed-, iahd, and paid all either begin or end with the phoneme d, which is also the initial phoneme of da 'what'. This suggests that there may be a possible etymology for each of these other interrogatives containing initial or final d involving an ancient combination of *da with some other morpheme.⁴ Since the other elements are all dubious this can neither be supported nor rejected at this time, but we might wish to speak of Ponapean interrogatives as d words in the same sense that English interrogatives are sometimes spoken of as wh words.

A plural or distributive suffix -nge may be added to the forms da, ia, and ihs yielding the forms dah-nge, iah-nge, and ihsi-nge, which may be glossed as 'what all', 'where all', and 'who all' respectively. I suspect that the same suffix may also combine with mehnia 'which', but do not find an instance attested and lack access to an informant currently.

I observed all these forms in current conversational usage except keus, which I have found only in quoted conversations in various kinds of folktale texts, both those recorded by myself and others, including native Ponapean writers. I suspect the list is exhaustive for modern Ponapean.⁵ It certainly includes all the common interrogatives and some which are not so common. The less common ones are, in addition to keus, those which are also unusual from the point of view of comparative linguistics: dehn- (and its free variant depehn-), ed-, and paid.

A description of the syntactic function of Ponapean interrogatives may begin with the simplest uses. All but three of the interrogatives (depe 'how many', ed- 'proceed in what way', and paid 'and who else') may constitute one-word sentences. Many linguists would no doubt treat these one-word sentences as produced from longer major sentences by deletion of the remaining parts. Personally I prefer to regard the one-word interrogative sentences as being complete sentences in themselves which are, however, usually related to other, immediately previous longer sentences by reference, not deletion. The issue here is a question of the general handling of deixis; it is not a matter of some peculiar feature of Ponapean as distinguished from English or some other language.

The simplest sentences involving the three remaining forms, depe, ed-, and paid, are all two-word forms. depe 'how many' must be preceded by the nominalizing particle or pronoun meh(h) or by a noun indicating the kind of things being counted: meh depe 'how many' (of anything); aramas depe 'how many people'. The interrogative verb ed- must have a noun or pronoun as subject preceding it, and as noted above, it must also have a directional verb suffix added to it: ke edi-la literally, 'you proceeded-in-what-way thither', more idiomatically, 'how did you get there'. The simplest question with paid is a personal noun or pronoun followed by paid: ih paid 'he and-who-else'.

The two words for 'what', da and dahkot appear to have partly complementary distribution. dahkot, the longest form, is used less frequently in most contexts, and perhaps not at all in some. However, it is the normal form in short equational questions, and da cannot be used at all in these apparently, e.g. dahkot mwo 'what (is) that'; dahkot nohno-hn nih 'what (is a) mother-of coconuts', i.e. idiomatically, 'what is a coconut seed tree'. It is occasionally used in questions corresponding to major sentences where da would also be appropriate, e.g. dahkot me ke weuwa 'what (is it) that you are-carrying'.

Another type of short equational question can be formed using ia in a special sense meaning 'what' rather than 'where'. ia may be used in this sense preceding any of a limited number of nouns, with which it is equated. None of these nouns denotes a physical object. In these questions the noun involved always has a possessive suffix appended or the construct suffix -en 'of' plus some other appropriate phrase. Some common examples of nouns used in this fashion with ia are: ed-e 'its (his) name', mwar-e 'his name (honorific)', wehwe-h 'its meaning', du-e 'its manner', mwomw-e 'its appearance', u-e 'its quantity'; e.g. ia wehwe-h, literally, 'what meaning-its' i.e. 'what is its meaning' or 'what does it mean'; ia u-e 'what quantity-its', i.e. 'how much is there of it'.

We have already noted above the existence of the interrogative depe 'how many' following denumerable nouns and pronouns in a kind of attributive sense, questioning the number of the things denoted by the noun. Two other interrogative words can also be used with nouns to question noun attributes: da 'what' and mehnia 'which'. Short sentences can be formed of nouns plus da in which da may be translated as 'what kind of', e.g. kehp da 'what kind of yam (is it)'. There may be some limitation on the nouns which may be used in this construction to nouns which represent higher

(more inclusive) taxonomic categories which are subdivided into a sizeable number of lexically represented lesser categories. At least it is only such nouns which occur in this construction in the available texts. The proper answer to such a question would be an identification of the variety (subcategory), either by name or by some reference to a distinguishing characteristic. Perhaps the most common noun used in this construction is soahng, which itself simply means 'kind' or 'sort': soahng da 'what kind (is it)'.

When mehnia 'which' is used to question a noun attribute it precedes the noun. The normal position for adjectives and most other attribute words is following the noun, but a few also precede, and mehnia invariably does.⁶ The meaning of mehnia is not changed in this construction: e.g. mehnia aramas 'which person'.

Possibly any interrogative which may question a substantive can be used in certain constructions of noun plus the construct suffix -en 'of', 'for' plus the interrogative. However, the only ones which are clearly attested in such a construction in the corpus examined are da 'what', ia 'where', and ihs 'who'. da used in such a construction retains its usual sense and contrasts with the construction mentioned earlier in which it follows an unsuffixed noun directly and means 'what kind of'. Thus tuhke da would mean 'what kind of tree (is it)'; or 'what kind of wood (is it)', but tuhke-hn da, with the construct suffix -hn (= -en) intervening between noun and interrogative, means 'a tree for what' or 'a piece of wood for what', i.e. 'what is the tree for'. One might ask the latter question when wondering whether it was for making a canoe, for building a house, for decoration, or other purposes.

ihs can follow only certain nouns in the construct form, namely, those nouns which can also take personal possessive suffixes, e.g. ri-en ihs 'sibling of whom' or idiomatically 'whose sibling' and ri-ei 'sibling mine' or 'my sibling'. Many of these nouns also serve as possessive classifiers for other nouns which cannot take personal possessive suffixes. Nouns of the latter type must follow ihs in constructions which are semantically parallel to those just discussed, and ihs must be preceded in these constructions by the appropriate possessive classifier⁷ plus the construct suffix -en, e.g. e-hn ihs nohno, literally 'possession-of whom mother', idiomatically, 'whose mother (is she)'.

Clauses containing a main verb and an interrogative word other than the subject or part of the subject often have a different word order from the corresponding declarative clauses. When word order is changed, the difference is that the interrogative word or

noun phrase containing it occurs before the subject, at or near the beginning of the clause (sentence adverbs and clause conjunctions still preceding), while the word or phrase corresponding to the interrogative in the declarative clause occurs at various later points. No difference in the order of other parts of the clause is involved. If the interrogative word corresponds to the subject of the corresponding declarative clause or to a part of the subject there is no difference of word order between the two types of clause, since the subject is regularly in near-initial position.

Two exceptions to the difference in word order may be noted. The interrogative verb ed- 'proceed in what way' involves no difference in word order from the corresponding declarative sentences: ke edi-la 'you proceeded-in-what-way thither', i.e., 'how did you go'; i sapal 'I walked'. The interrogative ia 'where' can occur either in near initial position or after the verb; the latter is the common position for locative expressions in declarative sentences. When it occurs before the subject, however, it must, so to speak, be 'doubled' by the related form ie 'there' in the regular position for locative expressions: ke koh-sang ia, literally, 'you came from where' or ia ke koh-sang ie, literally 'where you came from there'; either means more idiomatically 'where did you come from'. I would regard the doubled form as an overt separate representation of two separate semantic and syntactic aspects which can both be alternatively expressed in united fashion by the single form ia in non-initial position. Where the ia...ie construction is used, it appears to be the first component ia which serves as a sentence adverb expressing the question aspect and the second component ie which primarily expresses the part of the sentence which is questioned.⁸ Perhaps in this construction it might be better regarded as meaning 'someplace' rather than 'there', although it is used elsewhere without ia to mean 'there' in the sense of 'the place just mentioned'.⁹

When an interrogative word occurs in a question corresponding to a major declarative sentence, i.e. one containing a substantive subject and verb-centered predicate, each with optional additions, the interrogative is often followed by the form me, which may in this case be regarded as a relative pronoun, forming a relative clause with the remainder of the question. The form of the larger construction including the interrogative and the following relative clause can be regarded as an equational sentence (there being no special form for a copula in Ponapean), e.g. ihs me kohla 'who (was it) that went'. This analysis would give the immediate overt constituents of the sentence as ihs 'who' and me kohla '(the-one)-

that went'. An alternative analysis would be to regard the sequence ihs me as an idiomatic two-morpheme construction translatable as 'who' and as one immediate constituent of the sentence, with kohla 'went' alone as the other immediate constituent. While this may seem incompatible with the first analysis, either makes sense in context and there is no difference between the two in extra-linguistic meaning. Possibly Ponapean is currently in a stage of transition from the first to the second of these syntactic interpretations, although it would be too much of a digression to present a full discussion of this hypothesis.

The frequency of use of me varies with different interrogatives. It is generally used with ihs 'who', with nouns followed by depe 'how many', with mehnia 'which' and nouns preceded by mehnia, with pronouns or nouns followed by paid 'and who else', with nouns followed by da in the sense of 'what kind of', with nouns plus the construct suffix -en plus any appropriate interrogative (principally da 'what', ia 'where', and ihs 'who'), and with dahkot 'what' when it is occasionally used in this kind of major question. An example of a major question with ihs is given in the preceding paragraph; some other examples follow: aramas depe me kohla 'people how-many (were they) who went', i.e. 'how many people went'; mehnia aramas me kohla 'which person (was it) that went'; ih paid me kohla 'he and who else (was it) that went'; ri-en ihs me kohla 'sibling-of whom (was it) that went', i.e. 'whose sibling went'; dahkot me ke weuwa 'what (is it) that you are-carrying', i.e. 'what are you carrying'. Omission of me in these examples would not seriously affect intelligibility but would make the question sound abbreviated, informal, or childish. me is sometimes omitted after interrogatives in song or poetic texts for metrical reasons, to make the length of a line correspond to the seven or five mora length characteristic of Ponapean poetry.¹⁰

With da 'what' me usually follows in a major question, but is occasionally omitted: e.g. da ke pahn ka-mwenge-ie, literally, 'what you will let-eat-me', i.e. 'what will you let me eat' or 'what will you feed me'.

With iahd 'when' me sometimes follows and sometimes does not: iahd ke pahn kohla 'when you will go' or iahd me ke pahn kohla 'when (is it) that you will go', i.e. for either, 'when will you go'.

With ia 'where' in the pre-subject position me generally does not follow. However, sometimes the spatial sense of ia in a question is further redundantly specified by adding the noun wasa

'place'. In this event me can follow wasa, although this is optional: ia wasa me e kohla ie, literally, 'where place (was it) that he went there' or ia wasa a kohla ie, 'where place he went there', i.e. for either, 'where did he go'.

As far as I know me is not used in major questions after mehnda or pwekida 'why'. There are not enough instances of the obsolescent form keus 'who (second person)' to be able to generalize with much confidence about its usage, but there are a couple where keus is used as the subject of a major question without me, e.g. keus tietiak rong-en Luhk "who-are-you treading-on the-taboo-place of (the god) Luhk".

The presence or absence of the relative pronoun me following an interrogative word in near initial position does not seem to be motivated by any strictly grammatical or semantic principles. There does not seem to be any general grammatical or semantic reason, for instance, why one should not be able to say *pwekida me e kohla 'why (was it) that he went' instead of simply pwekida e kohla 'why he went' for 'why did he go'. The presence of both usages, with and without me, in the case of iahd 'when' and to some extent also with da 'what' again suggests that the use or not of me is a semantically and grammatically arbitrary convention that has developed or persisted with certain forms and not with others.

I suggest that the use or absence of the relative pronoun me following near initial interrogatives may be largely, though perhaps not wholly, explained as a result of a balance between positive and negative factors which varies for each form. Perhaps the greatest factor conducive to the presence of me is a need to facilitate understanding of the utterance by presenting a phonetically long enough construction for a concept apparently expressible by a single excessively short morpheme. On these grounds we might expect those interrogatives which had been historically reduced by the phonetic erosion of sound change to two or three phonemes to be lengthened in some fashion to a more nearly optimal size. This would help explain the regular or nearly regular use of me with the relatively short forms ihs 'who' and da 'what' and the absence of me with the longer forms mehnda and pwekida 'why', and the optional presence or absence with the form of intermediate length iahd 'when'. The case of ia is discussed below. One plausible way of lengthening a morpheme which is too short is to pair it with another morpheme which is either synonymous with it as a whole or with part of its meaning. me fulfills the latter requirement for these interrogatives and is an appro-

priate choice for a form following an interrogative because it signifies the part of the meaning of the interrogative which is directly tied in with the following clause. One might also expect me to be used with the short form ia 'where', but as has been noted above the form ie 'there' is used later in the clause as another sort of redundant confirmation of the sense of ia when the latter is initial, and otherwise there is a redundant confirmation of the sense of ia by its occurrence in the normal position for locative expressions in the later part of the clause.

Another factor conducive to the use of me may be the tendency in Ponapean to value formal speech, in view of the emphasis on social rank and etiquette.¹¹ Where an option exists, the form of a question using me (the fuller form) is more formal, polite, or honorific than the form not using me.

The principal factor conducive to the omission of me after near-initial interrogatives would seem to be the tendency in all languages to represent by a single short word and ultimately by a single distinctive morpheme any stable and commonly used concept or group of concepts, no matter how complex, semantically, and no matter how grammatically complex the form used to express the concept group initially at an earlier stage of the development of the language. An English example, for instance, would be the everyday use of the single morpheme 'jet' for something like the complex construction 'jet-engined airplane'. I thus think it is likely that the relative pronoun me was once used after the longer interrogatives pwekida and mehnda 'why' and was used regularly after the slightly shorter iahd 'when' but that the use of me gradually declined as these interrogatives came into frequent use, since they were long enough to be phonetically distinctive.¹² We may think of this as a tendency for forms to 'absorb' meaning from adjacent forms with which they are regularly associated and which are not frequently used in contrast with still other forms. E.g. in the English example given, we can use 'jet' to refer to a kind of airplane because there are no other kinds of vehicles in common use at present which are powered by jet engines. The forms whose meanings are thus absorbed have become redundant and can then be dropped unless they are needed to provide phonological distinctiveness through sheer length.

What is the syntactic status of the interrogative words described? Do they belong to one syntactic form class or to several? Katz and Postal in their recent book written from a transformation viewpoint have advanced the hypothesis that

probably the sentence constituent which is questioned in any language is always a noun phrase.¹³ I suspect that it is true that in any language any part of a clause which can be questioned can somehow be paraphrased with a noun, making it possible to formulate a question using something comparable to English 'what': e.g. 'why' can be paraphrased as 'what is the reason that...'; the Ponapean interrogative verb stem ed- might be translated as 'what is the manner of movement of...' (and a comparable Ponapean paraphrase could no doubt be produced); etc. But I do not believe that the existence of these paraphrases involving a noun in central position helps us in determining the form class assignment of interrogatives, since a similar kind of paraphrase involving nominalization is generally possible with non-interrogative form classes such as verbs, adjectives, and even some others: e.g. 'he did -- his deed', 'the red roof -- the redness of the roof', etc. Such paraphrases probably tell us something about the relationship between nouns and the other major form classes, but may not help us so much in categorizing interrogatives with respect to these other form classes.

Two related approaches to categorizing interrogatives may be suggested. One is to ask what form class in the corresponding declarative clause the interrogative replaces. The other is to ask what is the form class of the simplest proper answer¹⁴ to the simplest uses of the interrogative words. In general, these two questions appear to give roughly the same answers. Below we list the various interrogatives and the classes of minimal forms which provide proper answers to them. The list is not exhaustive, but includes the most common uses:

da 'what': pronoun, noun, clause containing corresponding verb
dahkot 'what': (same as da)

dehn- 'what relation to': relational or locative noun, prepositional phrase¹⁵

ed- 'proceed in what way': verb of motion (in full clause), relational noun

ia 'where': locative noun or pronoun, place name, prepositional phrase

iahd 'when': temporal noun or pronoun, prepositional phrase, temporal clause

ihs 'who': personal noun or pronoun

keus 'who (second person)': personal noun or pronoun

mehnda 'why', 'to what purpose': explanatory or purposive clause

mehnia 'which': noun, pronoun, me plus adjective

paid 'and who else': (same as ihs)

pwekida 'why': explanatory clause, occasionally a prepositional phrase with ki 'due to'

The simplest case is depe 'how many'. This always corresponds to a numeral in the declarative clause corresponding to a question, and the proper answer to depe is a numeral (with attached numerical classifier, since numerals in Ponapean are not free forms).

All except three of the others (ed- 'proceed in what way', mehnda and pwekida 'why') can be answered by some kind of noun or pronoun, although there are often restrictions on these. E.g. ihs, keus and paid ('who', 'who (second person)', and 'and who else' respectively) can only be properly answered with a personal noun or pronoun; ia 'where' requires a locative noun or pronoun.

ed- is answered normally by a verb in a full clause. It is reasonably clear, I think, that ed- does not question the whole clause, but only the verb, since it must have a subject (actor) in the question in which it occurs and the subject of the question automatically determines the subject of the answer.

pwekida and mehnda are more of a problem in assigning to syntactic classes on the basis of either answers or substitute forms in the corresponding declarative sentence. This is because they are answered by and correspond to entire clauses, rarely to anything shorter: e.g. mehnda ke wia 'why did you do it', pwe en kalaimwunla 'in-order-that it-might grow-big'; pwekida ke wia 'why did you do it', pwehki e padahkieng-ie 'because he told me'. The clause conjunctions in these answers are specified in advance in the question, but neither the subject nor the verb (nor their adjuncts if any) are so specified, and all of these must be regarded as constituting part of a 'proper answer' to the question. If we simply take into consideration the thing questioned and the answer corresponding to the thing questioned we must probably say that pwekida and mehnda are clause interrogatives and do not correspond to any other single form class taken in isolation.

Some other interrogatives can also be properly answered by clauses or constructions composed of more than one major form class: e.g. mehnia ohl 'which man'; ohl me ke tuhweng aio '(the) man that you met yesterday'. In other words, while the name of a particular man or a noun referring to his occupation, etc., would be a proper answer to this question involving mehnia 'which', other proper answers could be given consisting of constructions composed of more than one major form class which served in any way to identify him reasonably well and distinguish him from other

people with whom the speaker might think the listener might confuse this man. Of course the answer taken as a whole is still a noun phrase, but the head noun ohl 'man' is already specified in the question and cannot be regarded as the 'thing questioned' nor as new information in the answer.

Moreover, even where an interrogative is answerable by a single major form class, it may be that more than one form class can be used to answer it: e.g. another possible proper answer to mehnia ohl 'which man' might be ohl reirei o 'man tall the', i.e. 'the tall man', where reirei 'tall' is an adjective corresponding to the interrogative word mehnia. Another example involves da 'what', which can sometimes correspond to a verb in the answer: e.g. dah me ke wiewia 'what (is it) that you are-doing'; i duhdu 'I am bathing'. It would probably be more accurate to say that duhdu in the answer corresponds to the verb phrase da...wiewia in the question, but in any case there is no noun or pronoun in the answer corresponding to da.

Judged by substitution patterns in corresponding declarative sentences and in proper answers there is considerable variety in the syntactic functions of the various interrogatives. Of course, substitution of interrogatives for non-interrogatives does not have the usual significance of a substitution test for form class membership, since the substitution results in a different type of construction, viz., an interrogative instead of a declarative clause, not simply another example of the same type of construction with different meaning. In this kind of substitution it is a little unclear as to how we should proceed. Should we look for the simplest non-interrogative corresponding form class? for the most commonly used corresponding form class? for the most explicit corresponding construction (which will probably be both long and relatively rare)?

Of course, different uses of the same form can involve more than one form class, as, for example, the use of English color words as both adjectives and nouns. Some of the difficulties in classifying interrogatives are simply of this sort, e.g. the use of da 'what' as an independent interrogative pronoun and its use after certain nouns as a sort of interrogative adjective. But some of the time, as with the instances of mehnia cited above, there are several different kinds of construction which can answer the same question, so the substitution test for classification seems to present problems. I think it is still possible to argue, however, that mehnia when used in a question as an adjunct to a noun should be regarded as an interrogative adjective on the grounds that adjectives

are the simplest form of noun adjunct; and that when used independently of a noun mehnia should be regarded as an interrogative pronoun.

There is still one problem remaining, namely, the additional function of all interrogatives as sentence adverbs. In so far as interrogatives simply specify that there is some particular constituent of the sentence which is unknown, they can be regarded as corresponding to one or another of the major form classes. But in so far as all interrogatives include a specific request for response they do not correspond to any of the overtly expressed components of the corresponding simple declarative sentence but have a sentence adverb function. We might conceive of this as a kind of reflexive syntactic function, in that as sentence adverb the interrogative refers to the entire sentence including the interrogative in its other syntactic function as, e.g. unknown subject, object, verb, or whatever. In terms of an immediate constituent structure grammar, we might say that the first split in the interrogative clause is that between the interrogative as sentence adverb and the clause as a whole containing the interrogative in a second function as some kind of unknown constituent. The interrogative would therefore be a form which simultaneously participates in more than one construction within the utterance, and the constructions involved overlap, as is inevitable with multiple participation of forms.

No doubt there are other ways of conceptualizing interrogative constructions in Ponapean as in other languages. Katz and Postal in their recent book devote considerable space to a transformational analysis of interrogatives,¹⁵ for instance, and this has provided me with much food for thought in preparing this paper. The postulation of such concepts as simultaneous multiple participation of forms in overlapping constructions, and absorption of the meaning of larger constructions by particular parts renders syntax and semantics more complex than some previous theories, but hopefully the greater complexity will enable the description to account for more of the observable usage with a minimum of underlying structure. I suspect, moreover, that ultimately it may also have the advantage of enabling generalizations about the direction of syntactic and semantic change and the stylistic meaning of equivalent but variant constructions.

FOOTNOTES

- 1 The examples in the paper are from several sources. The principal ones are my own field notes and word slips made in 1950-3 during ethnographic fieldwork on Ponape and a recent review of questions occurring in several texts: those of the German ethnographer Paul Hambruch (liberally scattered throughout three volumes of ethnography (G. Thilenius, ed., Ergebnisse der Südsee-Expedition 1908-1910, Series IIB 8, Ponape, subvol. 1-3, Hamburg 1932, 1936), some children's readers prepared by Ponapean teachers under the auspices of the Ponape Education Department, and a manuscript history of the island from its mythical beginnings until recent times by a Ponapean named Luelen, who died shortly after World War II. I wish also to acknowledge my considerable debt in understanding Ponapean to Paul Garvin's unpublished "Linguistic Study of Ponape" (Washington, Pacific Science Board, 1949), which was available to me in the field. I have not, however, had the opportunity to consult this recently, and it would be wrong to consider that the descriptive statements about Ponapean in this paper can all be backed up by this work of Garvin's, although I believe that the bulk of them can be in so far as they cover the same phenomena.
- 2 Italicized Ponapean terms are written in the modern standard orthography, developed with some modifications from Garvin's recommendations. This orthography is nearly phonemic, and the letters have approximately conventional values with the following exceptions: *oa* is a digraph for a low back vowel; *ng* is a digraph for a velar nasal; *mw* and *pw* are probably each best regarded as a digraph for a single phoneme, whose phonetic value is approximated by the cluster; *d* is a retroflex alveolar stop with optional affrication—it is not voiced *t* and voicing has no function in distinguishing phonemes; *h* is used only after a vowel to signify a phonemically long vowel; many speakers have a seven vowel rather than the six vowel system of my principal informants and of the standard orthography; the vowel shifts involved are complex but the most important is the differentiation of *e* into two phonemes. Hyphens in the Ponapean forms are used solely to indicate morpheme boundaries where of interest. Some utterances in the examples below are provided with both literal and free translations into English. Hyphens connecting English words in the literal translation are used to

indicate complex English glosses for a single Ponapean morpheme (bound or free). Forms in parentheses in the literal translations are treated as having no overt Ponapean equivalent, although they could generally also be joined by hyphens to adjoining forms and treated as part of a complex gloss.

- 3 Other uses of the form keus suggest that the proposed morphemic division, even if etymologically correct, was no longer active in the minds of recent Ponapeans. keus was also used in a non-interrogative sense as the title of a guard at the residence of the Lord of Deleur, one of a series of legendary rulers who once controlled the entire island. The verb keus-ih (where ih is a transitive verbal suffix) is also found in the sense of to 'challenge' or 'ask the identity of' someone. Both uses are illustrated in the following passage: silep-en wasa-hn kerada uet me mwar-e keus. ma silep-e kilangada aramas a e pahn keus-ih. iet me a pahn nda: 'keus', wehwe-h 'ihs kowe'. Literally, '(it-was) the-guard of place of entry this who title his (was) keus'. If guard its discovered a-person then he would challenge-him. It-is-this that he would say, "keus", meaning its (is) "who are you?". Freely, 'It was the guard of this place whose title was keus'. If the guard discovered a person then he would challenge him. This is what he would say, keus, meaning "Who are you?"'

If keus was in fact derived from the second person singular intimate pronoun kowe plus ihs 'who' this may explain its obsolescence in recent Ponapean. In general it would be rude in modern Ponapean to use the intimate form of second person pronoun to an unknown person. One would use instead the polite form komwi, an old plural pressed into service as an honorific, and replaced as plural in modern Ponapean by still another form kumwail. Plausibly, the use of kowe to strangers may still have persisted among the high ranking Lords of Deleur and their representatives after it disappeared among the general population.

- 4 A loss of final vowels from reconstructed protoforms is common in Ponapean. An optional loss of final -a is found in two Trukese interrogatives cognate with two Ponapean interrogatives which still retain the -a: Trukese meit, cognate with Ponapean mehnda, still has the obsolescent alternate meitta and Trukese menni, cognate with Ponapean mehnia, has a nearly obsolete alternate mennia.
- 5 There is one other little-used form mehd or meid which may be possible to use as an interrogative. I am familiar with it

mainly from the Ponapean translation of the Bible. The only examples of its use with which I am acquainted are in exclamations which might possibly be regarded as rhetorical questions, e.g. mehd kaselel 'how splendid'. Note that this also ends in -d. It may be cognate with Trukese meet, the usual word for 'what' and roughly equivalent in meaning and use to Ponapean da.

- 6 For a fuller description of word order of nouns and their attributes in Ponapean see J. L. Fischer, Syntax and social structure: Truk and Ponape, in William Bright, ed., Socio-linguistics (The Hague, Mouton, forthcoming 1966).
- 7 In general, the nouns denoting intimate possessions and associates which are at the same time forms long established in their current sense (as suggested by cognates in related languages) are those which take personal possessive suffixes and enter into the simpler of the two genitive constructions with ihs (the one without a separate possessive classifier or following noun). Most, perhaps all, nouns with personal possessive suffixes have corresponding verb forms, e.g. na-h 'his child', nai-neki 'have...as a child', i.e. 'be the parent of', 'own'; imw-e 'his house', imw-aneki 'have...as a house' or '...shelter'.
- 8 One might think that it should be obvious enough from the first component ia that the questioned part of the sentence is a locative expression. However, as shown below, ia has another non-locative sense; cf. the compound me-hn-ia 'which' listed above. A comparison with Trukese suggests that the modern Ponapean interrogative morpheme ia is derived from two originally distinct words, both interrogatives, which have become formally similar in expression through sound change; cf. Trukese ifa 'which' and ia 'where'; Trukese f is lost in some Ponapean cognates. Perhaps the confounding of the two forms through phonetic change may have led people to redifferentiate them by adding ie to specify the locative sense of ia in initial position or alternatively to specify the locative sense by putting ia in the position for locative expressions in declarative sentences. The only trouble with this explanation is that Trukese, which differentiates overtly between ia 'where' and ifa 'which', also has an identical use of the ia...ie constructions, and an identical alternative use of ia by itself in non-initial positions.
- 9 ie cannot be used as far as I know to mean 'there' accompanied by a gesture of pointing, for which the appropriate

form would be mwo, also translatable as a demonstrative pronoun 'that'.

- 10 Meter in Ponapean poetry is described and illustrated in my paper 'Meter in Eastern Carolinian oral literature', Journal of American Folklore, 72, 47-52 (1959).
- 11 For a general discussion of the relation between social hierarchy and speech on Ponape see the paper by Paul Garvin and Saul Riesenbergs 'Respect behavior on Ponape: An ethnolinguistic study', American Anthropologist, 54, 201-220 (1952).
- 12 I do not assume necessarily that in the last several millennia Ponapean or the series of ancestral languages from which it developed lacked words for 'why' and 'when'. However, the present words for these concepts were probably preceded by others which have now disappeared irretrievably. If so, then there would have been a time when the present words were less frequently used and probably also more specialized in meaning than they are now. This may, of course, have been a long time ago.
- 13 Jerrold J. Katz and Paul M. Postal, An Integrated Theory of Linguistic Descriptions (Cambridge, MIT Press, 1964). '...a questioned constituent can only be a Noun Phrase', 98; 'Although our generalizations about the range of wh occurrence in underlying P-markers [phrase-markers] is still not fully precise, it is sufficiently precise to explain why there are no question forms of prepositions, tense elements, modals, conjunctions, verbs, etc.', 99.
- 14 By a 'proper answer' I simply mean any answer which would be accepted by a fluent speaker of the language in context as providing the type of information sought by the questioner.
- 15 By a 'relational noun' is meant a noun which signifies an object which is defined by its relation to a second object. A kinship term such as 'father' is a relational noun in this sense since one cannot use the term 'father' in its usual sense to signify a man who does not have at least one child. By a 'locative noun' is meant a noun which is used semantically much like some English prepositions to specify the location of some object or event. Both these kinds of nouns almost always occur in Ponapean with either a construct suffix -Vn 'of' or a personal possessive suffix. The interrogative dehn- (free variant depehn-) is perhaps most commonly used to inquire about kinship relations, e.g. dehn-omw 'what-relation-of yours (is he)', ri-ei 'sibling of-mine'.
- 16 Op. cit.

A PROPOSAL CONCERNING ENGLISH PREPOSITIONS

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In chapter 2 of Aspects of the Theory of Syntax,¹ Professor Chomsky points out the essentially relational nature of such grammatical concepts as 'subject' (of a sentence) and 'object' (of a predicate phrase) as opposed to the categorial nature of such notions as 'noun phrase' or 'verb'. According to Chomsky, these notions can be reconstructed in formal grammars by introducing category symbols in the base phrase structure rules which specify the underlying syntactic representations of sentences, and by defining the syntactic relations as in fact relations between category symbols within these phrase-markers. Thus, 'sentence', 'noun phrase' and 'verb phrase' are provided as category symbols by the base, with the notion 'subject' defined as a relation between a noun phrase and an immediately dominating sentence, and with 'object' (in one sense) defined as a relation between a noun phrase and an immediately dominating verb phrase.

My purpose today is to question the linguistic validity of the notions 'subject' and 'object' and to raise doubts about the adequacy of Chomsky's proposal for formally reconstructing the distinction between relational and categorial grammatical concepts.

My inquiry will lead to a proposal which removes the distinction between 'noun phrase' and 'preposition phrase', and to the suggestion that 'grammatical case' plays a less superficial role in the groundwork of grammars than is usually recognized.

To begin my argument, I should like to ask, concerning such expressions as in the room, toward the moon, on the next day, in a careless way, with a sharp knife and by my brother, how it is possible in grammars of the type illustrated in Aspects to reveal both the categorial information that all of these expressions are 'preposition phrases' and the relational information that they are adverbials of 'location', 'direction', 'time', 'manner', 'instrument' and 'agent'. It ought to be possible to recognize that a 'preposition phrase' whose head is a time noun has the syntactic relation 'time adverbial' to the constituent which dominates it.

Some of the phrase-structure rules for English that I have seen in recent months introduce adverbial notions such as 'manner' and 'location' categorially. Either the strictly categorial information is lost, or perhaps it can be rescued by having non-branching rules which re-write each of these categories as 'preposition phrase'; but in any case the formal distinction between relations and categories is lost and constraints on the further expansion of the 'preposition phrases' need to be provided in ways that have not yet been made clear.

Other grammars that I have seen contain rules allowing more than one 'preposition phrase' in the expansion of a single category. In the abbreviated form of such rules, all of these 'preposition phrases' are optional. Difficulties in establishing the constraints on expansion of these categories remain as before, but now a new difficulty in the collapsing of rules becomes apparent. If category A is to be rewritten as B followed by two independently optional Cs, as in (1),

$$(1) \quad A \rightarrow B (C)(C)^2$$

then there are two non-distinct ways of interpreting this rule. I may choose the first C and skip the second, or I may skip the first C and choose the second; but in either case I end up with the same thing, namely B + C. Certainly different choices in the base component ought to correspond to differences in the language.³

The obvious alternative within the present model is to introduce new structure so that, whenever a sentence may contain more than one preposition phrase, each one must be immediately dominated by a constituent of a different type. That was the choice I made for noun-phrases in my original analysis of indirect object constructions.⁴ There the object was dominated by a node VP, the indirect object by a node Vtr.

There are, then, certain difficulties in the formal recognition of the distinction between categories and relations (= 'functions'). I

should now like to ask whether the two grammatical relations which Chomsky discusses in this chapter--namely 'subject' and 'object'--are in fact linguistically significant notions on any but the most superficial level.

The deep structure relevance of syntactic functions is with respect to the projection rules of the semantic theory. The semantic component recognizes semantic features associated with lexical elements in a string and projects from them the meaning of the string in ways appropriate to the syntactic relations which hold among these elements. I do not believe that 'subject' or 'object' are to be found among the syntactic functions to which semantic rules must be sensitive.

Consider sentences (2) and (3).

- (2) The door opened.
- (3) The janitor opened the door.

The semantically relevant relation common to the two sentences is that between the subject of the intransitive verb and the object of the transitive verb, not between the subjects of the two sentences. In sentences (4) and (5)

- (4) The janitor opened the door with this key.
- (5) This key opened the door.

we find once again that there is no constant semantically relevant function shared by the subjects of the two sentences, but there is between the subject of (5) and the instrumental preposition phrase of (4). If the term 'ergative'^{4a} can be used for the relation between the subject of an intransitive verb and the object of a transitive verb, a natural way to describe the syntax of the verb open is to say that it requires an ergative, tolerates an instrumental and an agentive. If the ergative is alone, it becomes the subject. If an instrumental accompanies the ergative, it becomes the subject, unless there is an agentive present. In a sentence with both instrumental and agentive, the agentive becomes the subject and the instrumental comes late, set off by means of a preposition.

Sentences (6) to (9) present further evidence that the syntactic relations with which semantic rules must operate are not simply those of subject and object.

- (6) My foot hurt.
- (7) The knife hurt.
- (8) The knife hurt my foot.
- (9) He hurt my foot with the knife.⁵

We have seen one case where a syntactic relation was overtly identified--the case of the non-initial instrumental marked with the preposition with. The next problem that must concern us is

the source of such prepositions.

In the typical case the ergative can become the subject only if instrumental and agent phrases are not present. There are situations, however, in which the ergative can be made the subject even in the presence of these other elements, that is, when the verb is passivable and when there is a passive marker in the auxiliaries. When the ergative is up front, the agent phrase appears non-initially, preceded by the preposition by, as in (11).

(10) The door was opened with this key.

(11) The door was opened by the janitor.

When we consider nominalizations like (12)

(12) The opening of the door by the janitor (with this key) where the ergative is itself indicated by a preposition; in this case of, it begins to appear that our account must concern itself with the source of prepositions in general.

It is my hope that a satisfactory solution to the problems uncovered in the above remarks may be worked out by accepting the following proposals.

I: The major constituents of a 'sentence' (S) are 'modality' (Mod), 'auxiliary' (Aux) and 'proposition' (Prop). This is expressed in rule (13).

(13) $S \rightarrow Mod \wedge Aux \wedge Prop$

II: The constituent 'modality' consists of 'sentence adverbials', 'time adverbials', as well as interrogative and negative elements. I have no strong conviction that these various elements comprise a single constituent, but for the time being I shall assume that they do. For the remainder of the paper I shall also assume that the modality elements are optional and at any rate are not involved in the observations that I shall be dealing with. No further mention of them will be made here.⁶

III: The category 'proposition' includes the verb and all those nominal elements which are relevant to the subclassification of verbs. The relevant rule may be something like (14).

(14) $Prop \rightarrow V (Erg) (Dat) (Loc) (Inst) (Ag)^7$

IV: All of the non-verb constituents of propositions are 'noun phrases' (NP). Notice rule (15).

(15) $\left\{ \begin{array}{l} Erg \\ Dat \\ Loc \\ \dots \end{array} \right\} \rightarrow NP$

Major syntactic functions, therefore, are introduced categorially. These elements are distinguished from true grammatical categories, however, in that their continued expansion is unary and

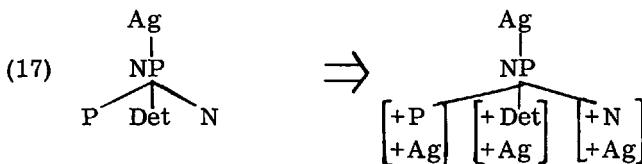
many-to-one.⁸

Borrowing from Tesnière, I shall use the term 'actant' for these elements which unarily dominate noun phrases.

V: Every noun phrase begins with a preposition.

(16) $NP \rightarrow P (Det) (S) N$

VI: The lexical categories 'preposition' (P), 'determiner' (Det), and 'noun' (N) take by convention the name of the actant dominating their noun phrase as one of the features making up the complex symbols associated with each of these categories. The convention will begin filling in the syntactic features of complex symbol as follows:



VII: The selectional constraints associated with lexical categories serving given syntactic functions will be provided by syntactic redundancy rules. Rule (18) expresses the claim that agent nouns are animate.

(18) $\begin{bmatrix} [+Ag] \\ [+N] \end{bmatrix} \rightarrow [+Anim]$

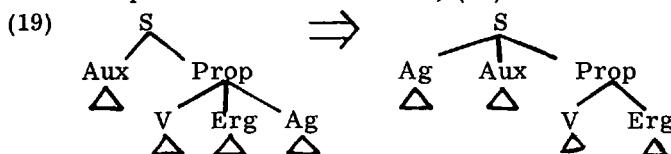
VIII: Some prepositions are filled in from the lexicon. Location prepositions (over, under, on, in, etc.) are introduced in this way, with some constraints. These prepositions bring with them semantic information.

IX: Some prepositions are assigned by inherent syntactic features of specific verbs. Thus blame requires the ergative preposition to be for, the dative preposition to be on; depend chooses on, object chooses to, etc.

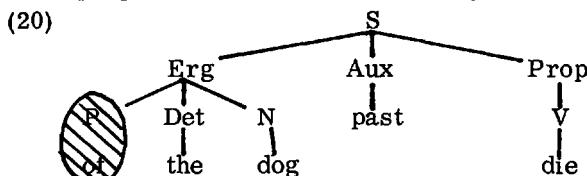
X: The remaining prepositions are filled in by rules which make use of information about the actants. Thus, e.g. the ergative preposition is of if it is the only actant in a proposition or if the proposition contains instrument or agent phrases; it is with otherwise. The instrument preposition is with just in case the proposition contains an agent phrase, otherwise it is by. The agent preposition is by.

XI: The subject of a sentence is selected, according to certain constraints, from among the propositional actants. A transformation places the noun-phrase selected to serve as subject to the left of the auxiliary phrase. For all sentences containing agentives, the agentive becomes the subject unless the auxiliary

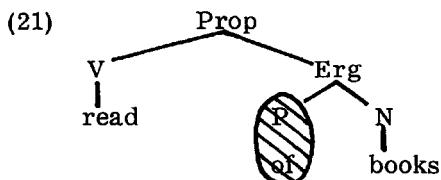
contains the passive element. Thus, (19)



XII: All prepositions are deleted in subject position. Thus, (20)



XIII: Some verbs are marked to delete the prepositions of the actants which immediately follow them. Thus, (21)



XIV: There are contexts in which the preposition-deletion rules do not apply, as for example when the verb is nominalized, giving us such expressions as the death of the dog and the reading of books.

XV: With some verbs the choice of subject offers certain options. Thus we get either (22) or (23).

- (23) ~~With~~ bees swarm in the garden
 (24) ~~In~~ the garden swarms with bees

XVI: In most cases, post-verbal dative and ergative may be permuted. Examples without post-verb preposition-deletion are

(24) and (25).

- (24) talk about this to Dr. Smith
 (25) talk to Dr. Smith about this

Examples with preposition-deletion are (26) and (27).

- (26) blame ~~for~~ the accident on John
 (27) blame ~~on~~ John for the accident⁹

XVII: In some cases the transformation which provides the subject of the sentence must be thought of as copying the selected actant in the position in front of the auxiliary. In ergative-locative sentences in which the verb is be, the ergative may become the subject, resulting in such sentences as (28).

- (28) Some books are on the shelf.

Alternatively, the locative actant may be copied in the subject position, later pronominalized, yielding sentences like (29)

- (29) There are some books on the shelf.

When nominalized sentences are made subject in this way, either the right copy is deleted or the left copy becomes it. Notice (30) and (31).

- (30) That he is a liar is true.

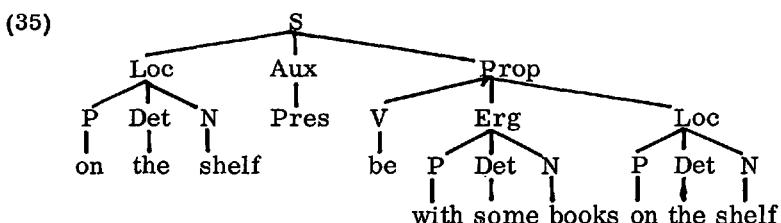
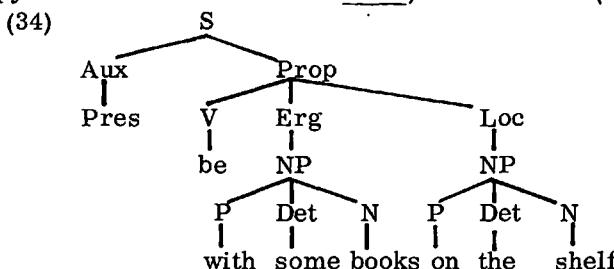
- (31) It is true that he is a liar.

This solution may have an advantage over various recent proposals to handle expletive it by introducing it as a co-constituent with 'sentence' of some noun-phrases, because it handles in the same way examples like (30) and (31) as it does examples (32) and (33), taken from Jespersen.

- (32) He is a great scoundrel, that husband of hers.

- (33) It is perfectly wonderful the way in which he remembers things.¹⁰

XVIII: The verb have is the result of the juxtaposition of be and the ergative preposition with after a noun phrase. Whenever a locative or comitative is made the subject of a preposition whose verb is be, a copy is left behind. The noun phrase of the right copy is pronominalized eventually (unless, as in XVII, the left copy of the locative becomes there). Thus from (34) we get (35).



The sentence-initial preposition is deleted, the repeated phrase the shelf is pronominalized to it, the sequence be + with becomes have, and the end result is (36).

- (36) The shelf has some books on it.

The comitative also has the preposition with, but the comitative with does not blend with be to give have. Thus, in ergative-comitative sentences we find have only when the comitative is made the subject. Thus (37) and (38).

(37) The children are with Mary.

(38) Mary has the children with her.

With ergative-dative sentences the choice of subject seems to be determined by the verb, and copying-with-pronominalization does not occur. Thus, belong [as in (39)] requires the ergative as subject, be [as in (40)] requires the dative.

(39) The books belong to Mary.

(40) Mary has the books.

XIX: Verbs in the lexicon will be marked according to the propositional environments in which they may be inserted. The statement of these environments allows the expression of options. I use parentheses for options, linked parentheses for cases where, of two adjacent terms, at least one must be chosen. Thus the verbs open and wake up have the feature (41)

(41) [+ Erg (Inst)(Ag)]

because we have sentences like (2) - (5) and (42) - (45).

(42) I woke up.

(43) An explosion woke me up.

(44) My daughter woke me up.

(45) My daughter woke me up with an explosion.

Verbs like impress have the feature (46).

(46) [+ Erg (Inst |Ag)]

because we have the sentences (47) - (49).

(47) You impressed me.

(48) Your behavior impressed me.

(49) You impressed me with your behavior.

Verbs like hurt will have the feature (50).

(50) [+ Erg (Inst |Ag)]

Stipulation: the choice + Inst | Ag is to be disallowed.¹¹

because we have sentences like (6) - (9).

XX: Verbs like kill and die will be given the same semantic features, with the relation between the verb and the ergative being the same in both cases, the difference between them being that kill requires an agent or instrument to be present, die does not allow an agent to be present.¹²

A transformational grammar which incorporates the proposals which have just been sketched has several advantages over one which does not, in addition to the possibly unimportant one that

sentences do not turn out to need quite so much branching structure as might be otherwise assumed. One of these advantages is the following:

Where in earlier versions of the grammar two statements were needed for the relative clause reduction rule, now only one is needed. The ergative preposition in sentences with dative, locative or comitative but without instrumental or agentive actants, is with. The preposition has just this form in sentences like (51).

(51) The garden swarms with bees.

but it is 'blended' with be when that verb is used, giving us (52).

(52) The garden has bees in it.

In older versions of the grammar one relative-clause reduction rule was needed for relative-pronoun-plus-be, changing (53) into (54),

(53) the boy who is in the next room

(54) the boy in the next room

and another rule was needed for relative-pronoun-plus-have, changing (55) into (56).

(55) the boy who has the red hat

(56) the boy with the red hat

Furthermore, one of these rules merely deleted the identified element, the other had to replace the identified element by with.

If it is true, however, that have is abstractly be + with, then a single rule will now cover both of these cases. Thus (57) and (58).

(57) the boy ~~who is~~ in the next room

(58) the boy ~~who is~~ with the red hat

We need to require merely that the rule for creating have follows the relative-clause reduction rule.

More general advantages associated with these proposals relate to the interpretation of historical changes and cross-language differences in lexical structure.

Certain historical changes in language may turn out to be purely syntactic, and, in fact, may pertain exclusively to the status of particular lexical items as exceptions to given transformational rules.¹³ The English verb like did not change in its meaning or in its selection for ergative-dative sentences, only in that it lost its status as an exception to the rule that all fronted actants were neutralized to the so-called nominative form.

Lexical differences across languages may not be as great as we might otherwise have thought. It is generally said, for instance, that English kill and Japanese korosu have different 'meanings' as demonstrated by the fact that in English (59) is acceptable,

(59) The fire killed the dog.

while the subject of korosu has to be animate. If we see, however, that even in English kill and die have the same underlying semantic representation, the differences between the two situations appears to be rather superficial. Both languages have words with the same meaning which can co-occur with ergative and instrumental. English has two such verbs, one of which allows the instrumental phrase to become the subject. The difference is no deeper than that.

The system must be able to meet various objections, and in ways that do not at present seem obvious. I have argued, for instance, that since semantic rules do not need to be sensitive to the grammatical functions 'subject' and 'object', deep structure representations do not need quite as much structure as usually supposed. The deep-structure reason for making the first division between noun-phrase and verb-phrase was mainly to have a separate immediate dominator for the noun-phrases that were to be defined as 'subject' and 'object'. The added structure as far as the semantic component is concerned, is not needed. The division between subject and the remainder of the proposition is apparently needed for phonological rules, but that is exactly what appears in the surface structure since the surface subject is directly attached to the node 'sentence'. The problem is with coordinate conjunction. If it is true that the constituent 'verb phrase' is needed for the rules governing constituent conjunction, then my grammar adds one more to the cases where it is surface-structure constituents, not deep-structure constituents, that take part in coordinate conjunction.

No mention has been made, you may have noticed, of predicate-adjective or predicate noun sentences. I am willing to accept Postal's treatment of adjectives as sub-classes of verbs, but that suggests that I must modify my treatment of be as a verb. For noun-be-noun sentences I have no suggestion, except that for one class of them the term 'essive' and the preposition as (which has certain exceptional properties) suggest themselves. The number-matching requirement for predicate-noun sentences is a serious enough problem for any kind of transformational grammar which makes use of a context-free base.

Another order of difficulty is found in the treatment of certain manner adverbs, in that some of them seem to have a special relationship with the surface subject. If manner adverbs are merely constituents of the sentence--or, possibly, of the proposition--then my effort to regard such pairs as teach and learn, send and receive,

etc., as synonyms, must fail. I would like to say, for example, that both teach and learn select the propositional environment (60).

(60) Erg Dat Ag

although the conditions in which specific actants are optional are different for the two verbs. The only other differences between the two verbs are that learn requires the agentive preposition to be from and requires the dative to be the subject, while teach does not constitute an exception to either the preposition-selection rules or the subject-selection rules. Thus (61) and (62) have largely identical underlying structures.

(61) Mary learned French from John.

(62) John taught French to Mary.

The problem arises when we seek explanations for (63) and (64).

(63) Mary eagerly learned French from John.

(64) John eagerly taught French to Mary.

This problem too, fortunately, is just as serious in subject-object grammars, because the same problem is found in active sentences and their passive counterparts, as in (65) and (66).

(65) John willingly took advantage of George.

(66) George was willingly taken advantage of by John.

I suppose that my remarks can be summarized by saying that I do not regard all questions of grammatical case as belonging exclusively to the superficial structure of sentences. This may be true only of the 'nominative', under which term I subsume all those neutralizations of case distinctions that take place in noun-phrases that have been made subject, and of the 'genitive' which represents another kind of neutralization of case distinctions, one which occurs in noun-phrase modifiers derived from sentences.

Some Transformation Rules

1. Ergative fronting in intransitive sentences.

SD. Aux V - Erg - $\left\{ \begin{array}{l} \text{Dat} \\ \text{Loc} \\ \text{Com} \end{array} \right\}$

SC. 1-2-3 \Rightarrow 2-1-3

Note: The verb belong, which occurs in [Erg Dat], requires the application of this rule; be permits application of the rule except in [Erg Dat].

2. Locative and comitative "copying" in intransitive sentences.

SD. Aux V Erg - $\left\{ \begin{array}{l} \text{Loc} \\ \text{Com} \end{array} \right\}$

SC. 1-2 \Rightarrow 2-1-2

3. Dative fronting in intransitive sentences.

SD. Aux \overbrace{V} Erg - DatSC. 1-2 \Rightarrow 2-1

4. Left-copy pronominalization.

SD. Loc - X \overbrace{Loc} SC. 1-2 \Rightarrow $\left\{ \begin{array}{l} +Loc \\ +Pro \end{array} \right\}$ -2

Note: A generalization of this rule will hopefully account for other cases of 'inserted subjects'. The complex symbol $\left[\begin{array}{l} +Loc \\ +Pro \end{array} \right]$ is unstressed there.

5. Ergative fronting in transitive sentences.

Aux

SD. [X \overbrace{Be} En] V - Erg - Y $\overbrace{(Inst \mid Ag)}$ SC. 1-2-3 \Rightarrow 2-1-3

Note: Certain verbs - the 'non-passivable' verbs - will be marked as incapable of satisfying the SD of this rule. This rule is inadequate in several respects. It fails to account for dative-subject passives, and it must have associated with it some device for preserving non-deletable prepositions, in order to take care of sentences like It was looked at.

6. Transitive sentence subject.

SD. Aux \overbrace{V} X - NPSC. 1-2 \Rightarrow 2-1

Note: This rule takes the last NP in Prop and moves it to the subject position. The last NP will be Ag if Ag occurs, otherwise Inst.

7. Rule introducing have.

Erg

SD. NP $\overbrace{Aux - be - [with - X]}$ SC. 1-2-3-4 \Rightarrow 1-have- \emptyset -4

Note: The requirement that Aux be preceded by NP leaves the form be after the "existential" there.

8. Right-copy pronominalization.

SD. X \overbrace{NP} \overbrace{Y} - NP' - ZSC. 1-2-3 \Rightarrow 1-2+Pro-3

Condition: NP = NP'

9. Reflexive.

Act: Actj

SD. X $\overbrace{[NP]}$ \overbrace{Y} - [NP] $\overbrace{+Pro}$ - Pro - ZSC. 1-2-3-4 \Rightarrow 1-2 $\overbrace{[+Refl]}$ - 4Conditions: NP = NP', Act: \neq Actj.

Note: Pronominalized elements are reflexive when they manifest

different syntactic functions. The cover-symbol 'Act' ('actant') refers to immediate dominators of NP.

10. Pronouns

SD.	X - [P ~ Y	$\left[\begin{array}{c} \alpha \text{Sg} \\ \beta \text{Gender} \end{array} \right]$	- Y
SC.	1-2-3 \Rightarrow 1-	$\left[\begin{array}{c} +\text{Pro} \\ \alpha \text{Sg} \\ \beta \text{Gender} \end{array} \right]$	-3

11. Subject preposition deletion

NP	
SD.	[P - X ~ Aux ~ Y
SC.	1-2 \Rightarrow \emptyset -2

12. Ergative-dative permutation

SD.	NP ~ Aux ~ V - Erg - Dat - X
SC.	1-2-3-4 \Rightarrow 1-3-2-4

Note: Rules 12 and 13 are generally optional.

13. Instrumental-agentive permutation

SD.	NP ~ Aux ~ V ~ X - Inst - Ag
SC.	1-2-3 \Rightarrow 1-3-2

14. Object preposition deletion

Erg	
SD.	X ~ V ~ Dat - [P - Y]
SC.	1-2-3 \Rightarrow 1- \emptyset -3

15. Object preposition deletion

SD.	X ~ V - P - Y
SC.	1-2-3 \Rightarrow 1- \emptyset -3

Note: Individual verbs will be marked with respect to the applicability of rules 14 and 15. Send, e.g. is subject to both 14 and 15, blame only to 15, speak to neither.

FOOTNOTES

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- 1 MIT Press, 1965, esp. 63-73.
- 2 Chomsky, *ibid.*, 107, uses both alternatives in the same rule: $VP \rightarrow V(NP)(Prep-Phrase)(Prep-Phrase)(Manner)$
- 3 It should also be pointed out that the syntactic relation defined as C-under-A is not unique in A just in case C was chosen twice.

- 4 Charles J. Fillmore, 'Indirect object constructions in English and the ordering of transformations', The Ohio State University Research Foundation Project on Linguistic Analysis, Report No. 1, 1r, 1962; reprinted, Mouton, 1965.
- 4a Herein a slight violence is done to the traditional terminology. From the fact that in the so-called 'ergative languages', subject-of-intransitive and object-of-transitive have the same case, the word 'ergative' is used here instead of the more traditional 'nominative' to identify that case.
- 5 Problems very similar to those taken up in this paper, with very similar examples, are given in a quite dissimilar solution in George Lakoff's work On the nature of syntactic irregularity, Harvard University Computation Laboratory Report No. NSF-16, 1965.
- 6 For various reasons I am convinced that instead of treating negativity as an optional subconstituent of the optional constituent 'modality', it is better to introduce it as an obligatory constituent 'modality' a disjunctive element which is either negative or affirmative. This appears to be necessary because of various semantic rules whose effect is to reverse the negativity value of a sentence--changing affirmatives to negatives and negatives to affirmatives. On these matters, see my 'Entailment rules in a semantic theory', The Ohio State University Research Foundation Project on Linguistic Analysis, Report No. 10, 1965, 60-82; also, my 'Deictic features in the semantics of come', to appear in Foundations of Language, 1966.
- 7 The abbreviations to the right of the arrow are for 'ergative', 'dative', 'locative', 'instrumental', and 'agentive' respectively. Other such elements [but I'm not sure whether they should be introduced within (14) or whether in fact rules for expanding Prop should provide several sentence-type formulas] are 'comitative', 'extent', 'benefactive', etc., and, of course, the recursive symbol S. Presumably the concepts involved are among the substantive universals which a grammatical theory must specify.
- 8 It is very possible that the form of grammars which I am suggesting is at bottom one in which the underlying structure of a sentence is representable as a rooted tree with labeled nodes and labeled branches. This would be equivalent to a phrase-structure grammar in which, beginning from S, all even-numbered branches are unary.
- 9 I first became aware of these properties of verbs like swarm

and blame (22), (23), (26), (27) in a paper on the prepositions for and with by Ohio State University graduate student James T. Heringer.

- 10 Jespersen, Otto, The Philosophy of Grammar, 1934, Norton Library reprint, 1965, 25f.
- 11 Obviously, then, the abbreviatory notation is inadequate. It is likely that syntactic redundancy rules of the type discussed by Chomsky [op. cit., 164-170] can be used to simplify the statement of these features in the lexicon, but for the time being the only method available to me is brute force.
- 12 The essential difference between the proposals presented in this paper and those of Lakoff appears to be that Lakoff seeks for 'synonymous' words identity of semantic reading and lexical base but not lexical extension (the last two terms are from Lakoff, op. cit., Chapter VIII, 6f.), whereas I seek only identity of semantic reading.
- 13 In Lakoff's terms, only the lexical extensions change, not the lexical base.

OPERATIONAL PROCEDURES IN SEMANTICS,
WITH SPECIAL REFERENCE TO MEDIEVAL
ENGLISH

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A considerable part of modern language analysis has been carried out with the exclusion of meaning, partly with unjustified appeal to L. Bloomfield.¹ There can, however, be only little doubt as to Bloomfield's resigned attitude towards 'meaning'.²

In spite of a good deal of progress achieved by structuralism in analyzing the form patterns of languages, only the surface of the semantic field has been scratched. The well-known article by J. J. Katz and J. A. Fodor can at best be called only a very shy beginning and will certainly have to be modified in order to be applied with greater success to semantic problems.³ Besides, the examples chosen by them are relatively simple because of their ties to the concrete sphere in the non-linguistic world and their 'semantic marking', well distinguishable in part.

The little progress achieved by structuralism in the field of semantics weighs the more heavily as there has hardly ever been the slightest doubt about the primacy of 'meaning'.⁴ L. Antal recently attributed the partial failure of structuralism in this respect to structuralists like F. de Saussure, who were clinging to psychological concepts of the past. There can be no question that this is true with de Saussure and also with others. (It is, however, another question whether we can exclude psychology entirely when dealing with meaning.) To Antal's Marxist mind language and meaning are objective phenomena. With brilliant, but easily

refutable dialectic he argues:

Meaning cannot be an image or a concept. If meaning were identical to these, it would not belong to language, and linguistics would exclude it from its proper field of study.

Meaning is nothing more than a rule of word usage, and, being a rule, it can only be an abstract and fixed objective phenomenon.⁵

Thus, Antal defines meaning as the rule of application of linguistic signs to denotata and suggests the observation of the denotata for examining meaning. We have to believe him, the Marxist, when he says that meaning is a kind of abstract social objectivity traceable only in its manifestation on the parole level. This somewhat courageous effort to 'de-psychologize' meaning does not offer any practicable solution. This objectivization shifts the problem from the meaning to the denotatum, but shifting a problem does not mean solving it. As a matter of fact, with his stressing the axis 'linguistic sign-denotatum' he is close to Bloomfield's concept.

Bloomfield also wanted to avoid recourse to psychological factors and denied that mental processes precede or follow physical processes with the speaker or hearer respectively. For him, a behaviorist, meaning is 'the situation in which the speaker utters it (the linguistic form) and the response which it calls forth in the hearer'.⁶ It is easy to prove that Bloomfield's conception is an over-simplification of the process of communication. Not all situations in life are of the practical 'Jack-Jill-garden-apple' type. We often talk about absent⁷ and also so-called abstract objects, where predictability decreases. Bloomfield assumes a degree of uniformity in the s-r Situation which exists no more in practical life than the complete identity of the speaker and hearer perspectives, which he also takes for granted.⁸ In his 'antimentalism' he overlooks a certain amount of interdependence between language and reality, which was overrated, on the other hand, by W. v. Humboldt, L. Weisgerber, B. L. Whorf, and others. Besides, the behavioristic model suitable to some extent for the analysis of present-day speech hardly offers any help with older stages of languages like Old and Middle English, in which extra-linguistic responses to particular linguistic stimuli are rarely described; and whenever they are, this description serves to emphasize the linguistic utterances rather than constitute a meaning *sui generis*.⁹

The mentalistic conception, far from being an invention of the twentieth century, was first clearly formulated by C. K. Ogden and I. A. Richards. According to this concept there is no direct relation between the signifier and the signified, thought (or concept,

image, etc.) functioning as an indirect link between both. Criticism of this theory, especially from the behavioristic school, is sufficiently known. Since it has a mentalistic basis, it is, however, impossible to prove it wrong; for we simply do not know enough about the process of arriving at meaning and probably never will know.

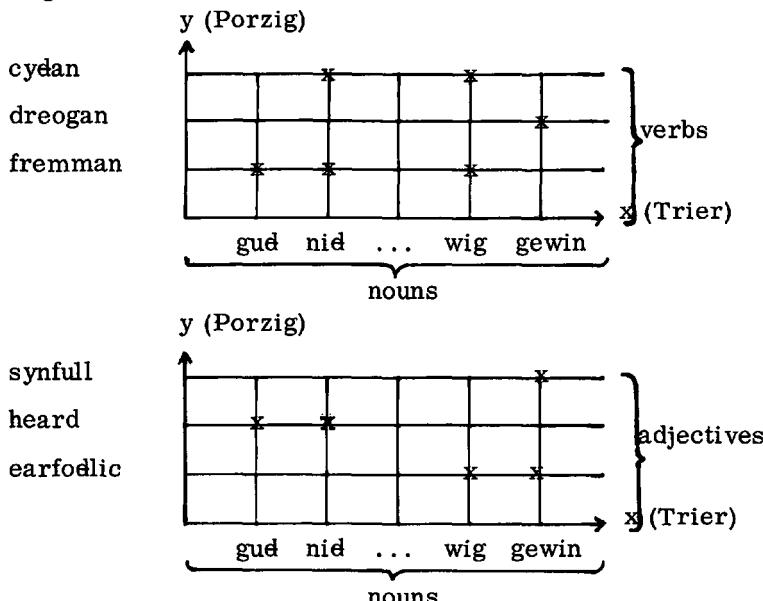
This mentalistic approach again does not help us in an analysis of older stages of languages.¹⁰ Still, we could have a kind of general framework within which to analyze la langue if we were to take the signifier-image axis, i.e. the referential part, away from the triangular concept and make it our basis, not completely ignoring the third part, the signified (i.e. denotatum).¹¹

The only realistic way of investigating parole conditions in Old and Middle English seems to be operational.¹² Operational procedures again are not exclusively a product of the twentieth century. Philologists of all times have been scrutinizing words by using all clues given by the texts under investigation, but systematization was achieved only when 'operationalism' was transferred from the fields of science and philosophy to the field of language. L. Wittgenstein and the so-called 'Oxford School' largely contributed towards this process.¹³ The dynamic approach of operationalism is clearly expressed in the following statement: '...it (meaning) is something that occurs rather than exists'.¹⁴

Operational procedures, then, closely study occurrences of signifiers, investigating particularly their frequency, distribution, collocability, and context. Overrating one of these points leads to one-sided and, hence, false judgments. Thus, for example, gud and fæhde in Beowulf have about the same frequency. A distributional analysis, however, shows that fæhde has a smaller collocational range than gud. The meaning of gud seems to have been less profiled than the one of fæhde, a finding that is also supported by the fact that the former appears more often in poetry, which on the whole prefers the vague term to the precise.¹⁵

Operational also is W. Porzig's syntagmatic, or syntactic, field that embraces representatives from different word classes (e.g. one verb like fell associating with tree, fir, oak, etc.) and, thus, sets up collocations similar to J. R. Firth's method. An analysis of this kind shows affinities, neutralities, and incompatibilities between syntactic patterns.¹⁶ Porzig's field lacks the system that J. Trier's less operational, onomasiological field has, in opposition to which it was devised.¹⁷ On the other hand, that of Trier contains a priori judgments in outlining his own

fields. Neither excluded the possibility of some kind of sound amalgamation.¹⁸ This synthesis can be accomplished in the following way: Confrontation of the individual lexemes of a specific onomasiological area with semantic (=collocation) partners in Porzig's sense.



Coordinate systems of this kind show similarities and differences in the behavior of 'quasi-synonyms', and they also show substitutabilities.

The operational approach is also called 'contextual'.²⁰ In Old English we can distinguish two large macrocontexts: prose and poetry,²¹ subdivided in themselves again according to their sujet, genre, and dependence upon Latin models. A comparison of the two large blocks in the E-area, for example, shows that a smaller variety of the E-lexemes in prose is combined with a larger spectral variety of verbs. Thus, poetry--lexically often preferring the vaguer term--is syntactically more clearly profiled than prose. Subtler distinctions are to be seen within the corpus of poetry.

Operational procedures will always attempt to find distinguishing factors (parameters) within onomasiological groups of semantically related signifiers. These parameters²² can be of altogether different kinds:

A. Semasiological:

1. Stylistic (e.g. prose-poetry = macrocontext)

- 2. Syntactic (collocations = microcontext)
- B. Morphological (e.g. compounding, derivation)
- C. Varying degrees of dependence upon or response to foreign models
- D. Onomasiological²³

Since (A) has already been touched, we will briefly discuss the other parameters. The morphological parameter (B) shows the different degrees of morphological fertility between signifiers like anda, hete, nið, and sacu in premodification as well as in postmodification structure.²⁴ Gram- only appears in compound forms; æfest, anda, æbylgd on the other hand do not form compounds at all.

The translation parameter (C) is one of the most difficult. Here the degree of dependence between the model language and the translation language has to be closely analyzed.

An examination of the E-area shows solid structure and strength. Expressions like hild and beadu seem to have had strongly pagan connotations, which fact explains their infrequent occurrence in translations of Christian literature.

The most valuable and at the same time most variegated parameter with many sub-parameters, which in turn have to be subdivided sometimes, is the onomasiological (D). The setting up of these sub-parameters is done experimentally. Some of them appear to be very fertile; others yield less striking results. But, of course, even the latter results are of the same importance. They prove the lack of semantic contours within onomasiological areas, thus yielding linguistic facts. In many cases collocations of two and even more sub-parameters yield clearer profiles. In most cases the results are of the 'unmarked vs. -marked' type, i.e. generic vs. privative terms. In Malory's Morte d'Arthur one of the distinguishing features between ME slen and ME destroyen is that ca. 10% of the occurrences of destroyen pertain to spheres other than kill, to which all occurrences of ME slen belong. The sub-parameter 'war' vs. 'non-war' shows that only ca. 1% of the occurrences of slen are used in the non-war sphere as opposed to ca. 28% for destroyen. (In OE an analogous difference exists between the lexemes gud, hild, wig, vs. lac, -plega, camp, the latter group also being used outside the sphere of enmity.)

In OE a collation of the sub-parameters 'activity-passivity-neutrality' and 'ethically positive-ethically negative-ethically neutral' shows that æfest is given evident preference in connection with an ethically negative, active subject. Other sub-parameters

chosen to distinguish signifiers within the area 'enmity' were the number of subjects involved (single opposing single, single opposing collective, collective opposing collective), isomeric E-relations (man opposing man, armies opposing armies, elements of nature opposing other elements of nature, etc.). Again collations can be made. One of the results is that gud, wig, and sacu appear as a kind of nuclear triad within this area.

One word about the role of etymology in operational procedures. Etymology, overrated throughout many centuries, tends to be almost ignored in modern semantic analysis. It becomes relevant, however, in the case of etymology-conscious individuals (Shakespeare; J. Joyce; T. S. Eliot; M. Heidegger, the latter sometimes beyond comprehension), who revive old etymologies. It is also relevant with specific social groups within definite cultural epochs (classical antiquity, Middle Ages). Distributional analysis within operational procedures shows a high frequency of hild and gud in subject position. It is possible that this distribution was guided by a limited awareness of the etymologies of the two words, which were originally the names of Valkyries and were as such well-suited for functioning as agents in subject position.

Apart from this historical, comparative etymology there is also the living innersprachliche etymology in which etymologically related lexemes are still semantically linked on a synchronic level.

Thus, a bundle of many factors, most of them called (sub)parameters, helps to distinguish semantically related signifiers. The whole procedure, in the course of which combinations must often be selected, is one of probing. Structural values of single units become evident after being semantically as well as onomasiologically approached.²⁵ Many disciplines, like anthropology, cultural history, and sociology would have to help evaluate and interpret the linguistic findings. The method, as explained above, is not new; new is its systematization that partially takes the place of the often ingenious intuition of scholars like J. Grimm, W. v. Humboldt, W. D. Whitney, and F. Klaeber without eliminating it completely.

FOOTNOTES

- 1 J. B. Carroll, The Study of Language (Cambridge, Mass., 1961), 31: 'A general characteristic of the methodology of descriptive linguistics, as practised by many American linguists today, is the effort to analyze linguistic structure without reference to meaning.' Cf. also Z. S. Harris, Structural Linguistics (Chicago, [Phoenix Book], [5th impr.], 1961), 365, n. 6 and C. C. Fries, 'Meaning and Linguistic Analysis', Language, XXX (1954), 57-68.
- 2 L. Bloomfield, Language (London, [6th repr.], 1962), 140: 'The statement of meanings is therefore the weak point in language-study, and will remain so until human knowledge advances very far beyond its present state.'
- 3 'The Structure of a Semantic Theory', Language, XXXIX (1963), 170-210.
- 4 Cf. e.g. B. L. Whorf, Language, Thought and Reality (New York, 1956), 73: '...linguistics is essentially the quest of MEANING.'
- Cf. also A. A. Hill, Introduction to Linguistic Structures (New York, 1958), 409: 'Undoubtedly important though para-linguistics may be, the field which is most important to all of us is that of "meaning".'
- Cf. also H. A. Gleason, Jr., An Introduction to Descriptive Linguistics (New York, 1961), 94.
- 5 L. Antal, Question of Meaning (The Hague, 1963), 91. Cf., however, his explanation of 'emotive impact' in Content, Meaning, and Understanding (The Hague, 1964), 60-61.
- 6 Ibid., 139.
- 7 Ibid., 141: 'displaced speech'.
- 8 Ibid., 139.
- 9 Cf. e.g. Beowulf, 11.235-236 (the coast-warden scene).
- 10 Cf. J. Lyons, Structural Semantics (Oxford, 1963), 1 and 3.6.
- 11 Cf. St. Ullmann, Semantics (Oxford, 1962), 67.
- 12 P. W. Bridgman, The Logic of Modern Physics (New York, 1927), 6: '...the proper definition of a concept is not in terms of its properties but in terms of actual operations.'
- Cf. also S. Chase, The Tyranny of Words (New York [A Harvest Book], 1938), 11-12.
- 13 L. Wittgenstein, Philosophical Investigations (Oxford, 1953), 20: 'For a large class of cases--although not for all--in which we employ the word "meaning" it can be defined thus: the meaning of a word is its use in the language.' [As sometimes

- in Wittgenstein's works he is hesitant, or even slightly self-contradictory, cf. 53, 55.]
- 14 W. Couto, 'An Operational Definition of Meaning', Quarterly Journal of Speech, XLVIII (1962), 64.
- 15 L. L. Schücking, Untersuchungen zur Bedeutungslehre der angelsächsischen Dichtersprache (Heidelberg, 1915).
- 16 For a criticism of too narrow an interpretation of syntactic partners, cf. G. Nickel, 'Sprachlicher Kontext und Wortbedeutung im Englischen', GRM, NF XV (1965), 95. So-called compounds, for example, should also be included.
- 17 Cf. W. Porzig, Das Wunder der Sprache (Bern-München [3rd ed.] n.d.).
- 18 Cf. also S. Öhmann, 'Theories of the Linguistic Field', Word, IX (1953), 129.
- 19 This combination of the two field theories has been to my knowledge applied first by one of my students, Dr. W. Kühlwein in his Ph.D. dissertation Die Verwendung der Feindseligkeitsbezeichnungen in der altenglischen Dichtersprache [to be published: Neumünster: K. Wachholtz Verlag, 1967]. Other examples from the 'Enmity' area in the future to be referred to as E also stem from this thesis. Other theses in connection with my revision of Holthausen's Beowulfkommentar are dealing with other 'areas'. The term 'area' is given preference to the functionally overloaded term 'field'.
- 20 For a discussion of the context problem, cf. G. Nickel, op. cit., 84-96, where the attempt has been made to reduce the complex context to (a) verbal context (micro- and macro-context), and (b) situational context (cultural, social, and chronological).
- 21 For an excellent study of the latter cf. again L. Schücking, op. cit.
- 22 For a convincing use of parameters in syntax cf. R. Quirk, 'Descriptive Statement and Serial Relationship', Language, XLI (1965), 205-217.
- 23 This list is not complete; the parameters are also far from having the same value, (A) and (D) being more important than the others. Evaluations have to be made flexibly.
- 24 Cf. J. R. Clark Hall, A Concise Anglo-Saxon Dictionary. (Cambridge [4th ed.], 1962). Some of the lexemes (e.g. -plega) appear only in final position; others (e.g. gud, hild) only in initial positions. Others again appear with different frequency in the different positions.

- 25 The results depend on the size of the corpus, or rather, on the quantity of signifiers in the particular area under investigation. In some areas, including the E-area, the scarcity of examples weakens the significance of the results.

SOME REMARKS ON THE VERB-PARTICLE CONSTRUCTION IN ENGLISH

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Recent work on the theory of grammar within the framework of transformational grammars¹ has resulted in the characterization of a grammar as consisting of a lexicon and three major rule components: a syntactic component, consisting of a base and a transformational subcomponent; a semantic component, and a phonological component, where only the syntactic set of rules is generative, the other two sets applying to syntactical constructs to provide the appropriate semantic and phonological interpretation of the sentence. All suggestions to date concerning the structure of the semantic component, while necessarily tentative in nature, work from the assumption that the ultimate semantic interpretation of a sentence will be derived by applying a relatively small set of rules, first to a sequence of lexical items comprising a syntactic category, then to sequences of syntactic categories comprising higher constituents, and finally, in this way, arriving at the interpretation of the entire sentence. Although it is difficult at this time to state with any assurance that some particular type of semantic rule is required in the grammar or that some semantic distinction must be included in the lexical representation of certain formatives, we can, nevertheless, examine certain formative sequences to determine whether or not they must be treated as compound entries in the lexicon and whether we can expect to derive their interpretation in some systematic way. In the following we examine a particular class of two-word verbs

which we will call the verb-particle construction to determine its status with respect to the considerations mentioned above.

In order to address these questions, we must first specify exactly what we mean by a verb-particle construction. Consider the sentences

- (1) (i) The man looked up the information
- (ii) The butler carried in the dinner
- (iii) They talked about the problem
- (iv) She ran into the woods
- (v) He awoke at 5 o'clock

where each sentence contains, at least superficially, a verb followed by a prepositional phrase. Each of the sentences in (1) has a different type of underlying syntactic analysis and each differs from the others in at least two ways with respect to its possible syntactic patterning. It will be sufficient for our purposes, however, to consider only a few syntactic patterns to distinguish the verb-particle construction from the others.

We note first of all that only in (1i-ii) does an acceptable sentence result when the preposition is moved to the position immediately following the noun phrase. The sentences in (2) illustrate this fact.²

- (2) (i) The man looked the information up
- (ii) The butler carried the dinner in
- (iii) *They talked the problem about
- (iv) *She ran the woods into
- (v) *He awoke 5 o'clock at

Actually, whether the preposition may be moved in these cases depends both on the structure of the following noun phrase and on the relationship of the preposition to the verb. The preposition in (1i-ii) cannot be moved to follow the noun phrase in many cases where the noun phrase is of considerable complexity, (e.g. when it contains a relative clause) while it must be moved when a pronoun follows.³ Of paramount importance for our discussion, however, is the fact that the preposition in (1i-ii) may be moved to the post noun phrase position in at least some cases (e.g. the case where the noun phrase is a pronoun) while the preposition in (1ii-v) may never be so moved. To distinguish (1i) from (1ii) we observe that both cases require a following 'of' as a result of applying the action nominalization transformation⁴ but only for (1ii) does an acceptable sentence result if the preposition has already been positioned so as to follow the noun phrase. In addition, while in neither case can the prepositions be conjoined when they are positioned between the verb and noun phrase, sentence (1ii) permits

such conjunction just in case the preposition has been postposed. The sentences in (3) illustrated these facts.

- (3) (i) The man's looking up of the information (surprised his boss)
 - *The man's looking of the information up (surprised his boss)
 - *The man looked up and over the information
 - *The man looked the information up and over
- (ii) The butler's carrying in of the dinner (pleased our host)
 - The butler's carrying of the dinner in (pleased our host)
 - *The butler carried in and out the dinner
 - The butler carried the dinner in and out

Not only do (1i) and (1ii) exhibit different syntactic patterning, but there is good evidence to support the claim that the 'in' in (1ii) is a reduced adverb of direction such as 'into the room'. It is thus the verb-preposition combination having the syntactic properties exhibited by the sentence (1i) that we define as the verb-particle construction. As we have already stated, this construction differs from superficially similar strings in numerous other ways, but we will not examine them here. We might also point out that the occurrence of the verb-particle construction is not restricted to only those verbal elements having a direct object noun phrase as in (1i) but occurs as well with verbs having no following constituents and with those having following prepositional phrases as the sentences in (4) illustrate.

- (4) (i) The gun went off
- (ii) The bomb blew up
- (iii) He spoke out about the problem
- (v) The father looked in on his children

We will limit our discussion here, however, to transitive verb-particle combinations though most of the remarks will be applicable to the sentences in (4) as well.

To date I have found the following formatives functioning as particles with at least one verb:

- (5) about, across, around, aside, away, back, by, down, forth, in, off, on, out, over, through, up

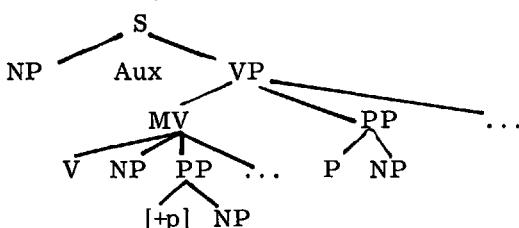
It turns out that not all verbs in English occur with even one particle and that even if a verb co-occurs with one particle it may not occur with more. The verb 'jot', for example, co-occurs only with 'down', 'fizzle' only with 'out', 'jack' only with 'up', and 'sober' only with 'up', while the verb 'get' co-occurs with fifteen of the sixteen particles, 'forth' being the lone exception. There are even cases such as 'ante up', 'hole out', 'pine away', and

'zip up' where the formative which is functioning as the verb in each of these combinations is never a verb without the particle. We will discuss some of these cases below.

Although we have clarified in syntactic terms what we mean by the verb-particle construction, we have said nothing about its actual constituent structure. There are actually two questions here: where should the particle be introduced in the P-marker by the rules of the base sub-component; should the particle be analyzed as a grammatical constituent such as N, V, VP, S?

In order to answer the first question we will assume a relevant base derived P-marker to be of the form⁵

(6)



It is clear from considering the syntactic patterning of the verb-particle combination as we have done to a partial extent in (2) and (3) above that this combination functions syntactically like a verb by itself with the exception of the particle movement. That is, the nominalization transformation, the passive, the question, and the relative clause transformations all treat the verb plus particle as a single verb⁶ and we would be missing an important generalization if we did not analyze the combination as being (at least initially) dominated by a single constituent. Therefore, rather than introducing the particle as dominated by MV in (6), we will consider it to be dominated by the constituent V. Thus, when the verb and the particle are initially introduced into the base derived P-marker, they are treated as a compound verbal element.

The answer to the second question is not as straightforward in that the criteria for motivating a constituent is not well established. What is at issue here is whether the particle, when it is introduced as being dominated by the verbal element, V, should be relegated to a constituent status, PRT, like NP, V, etc., or whether it should be analyzed only as a bundle of syntactic and semantic features such as [+prt; +completive; ...], similar to the analysis of the verb.⁷ If the position is taken that just in case a transformation specifically refers to a formative or string of formatives and alters them in some way such as moving them, permuting them, inserting something into them, etc., that this string of formatives must be accorded constituent status. This would be necessary be-

cause of the operation of the particle movement transformation though the transformation is as easily defined in terms of the movement of a bundle of features. If, on the other hand, the position maintained is that constituent status is motivated only if a string of formatives can be conjoined with another syntactically similar string or if the string of formatives must be analyzed as being further analyzable into additional syntactically motivated substrings, then the particle must be considered only a bundle of features since it neither conjoins nor is further analyzable. We assume this latter position and thus the application of the base rules and the insertion of the lexical formatives may result in a P-marker where the constituent V dominates one bundle of features including [+verb] followed by another bundle including the feature [+prt]. Although we have arrived at this conclusion by considering only syntactic evidence, it reflects what we intuitively feel, namely, that the verb and particle are not only syntactically but also semantically a unit which should be interpreted independently and before the interpretation of the verbal element with the remainder of the constituents dominated by the constituent MV.

Certainly if the verb-particle combinations are to be treated not as compound entries in the lexicon but rather as constructions composed of lexical items joined together in some systematic fashion, we must be able to predict which verbs can combine with which particles and in what way. If this is possible we would expect to find the criteria for combination statable in terms of syntactic, phonological or semantic considerations, or some combination of these. Accordingly, we consider now what systematicity exists between the class of verbs and the class of particles in terms of these components.

Turning first to syntactic considerations, we find almost no basis for stating which verbs can co-occur with particles or, more negatively, which cannot. As we have already indicated, both transitive and intransitive verbs combine with particles and to further complicate the situation, there are cases where verbs which are normally transitive become intransitive with the addition of a particle (for example, 'The man stacked the plates'--'The plates stacked up', 'She quieted the baby'--'The baby quieted down', 'They broke the dishes'--'The man broke down') and cases where verbs which are normally intransitive become transitive (for example, 'The man slept'--'He slept off the drinking', 'The man gulped'--'The man gulped down the juice'.) Furthermore, examination of the class of verbs which do combine does not reveal any large subclasses combining just in case the verb takes

an animate direct object or a nominalized subject or an indirect object or any other syntactically characterizable criterion. About the only definite statement we can make with respect to syntactic considerations is a negative one, namely, that no verb which contains the syntactic feature [+stative]⁸ can combine with a particle.

The possibility of a verb and particle combining is based, surprisingly enough, largely on the phonological shape of the verb. Kennedy (1920) points out that the majority of verbs occurring with particles⁹ are monosyllabic with the remainder made up primarily of bisyllabic words initially stressed. Actually, there are really very few phonemically bisyllabic verbs co-occurring with particles at all, for verbs like 'clutter up', 'ladle out', and 'siphon off' are represented as monosyllabic in the lexicon. There are, however, a few bisyllabic-non-initially stressed combinations such as 'cement up', 'divide up', 'explain away', 'consign over' and 'connect up' and a very few trisyllabic cases such as 'partition off', 'summarize up', 'telegraph in'. That the phonological shape of the verb does play the dominant role in determining the possible combination is strongly suggested by the sentences

- (7) (i) The general ordered up the troops
 *The general commanded up the troops
- (ii) He stuck up the picture on the wall
 *He attached up the picture on the wall
- (iii) The chemist mixed up the solutions
 *The chemist combined up the solutions
- (iv) The man changed over his heating system to gas
 *The man transformed over his heating system to gas

where we have attempted for each pair of sentences to choose verbs which are synonyms in at least one sense when occurring without the particle presumably satisfying any condition on the meaning of the verb but where the verb in each second sentence of the pairs is bisyllabic, not initially stressed, thus failing to meet the phonological requirements. But here, as in the case of syntactic considerations, we are not able to state what verbs do combine but only exclude a large number of those which do not, namely, the polysyllabic verbs of English. Many monosyllabic verbs not marked with the syntactic features [-stative] do not co-occur with particles (for example, 'nod', 'rock', 'chide', 'dive', 'fast') and thus we appear to be left only with semantic grounds to account for the combination of verbs with particles.

What, then, can we say about the combining of verbs and particles in semantic terms? We notice first of all that a subclassifi-

cation of the verb-particle combinations is possible, since for some verb-particle combinations the co-occurrence restrictions on the verb alone and the verb-particle taken together are exactly the same. These cases we call systematic verb-particle combinations; all other combinations are called unsystematic. Representative examples of these types are presented in (8) and (9), respectively.

- (8) (i) He stowed away the goods--He stowed the goods
- (ii) The man hosed down the deck--The man hosed the deck
- (iii) The woman mixed up the batter--The woman mixed the batter
- (iv) She sold off her furniture--She sold her furniture
- (9) (i) He shelled out the money--*He shelled the money
- (ii) The man wrote off the bad debt--*The man wrote the bad debt
- (iii) The woman ran up the bill--*The woman ran the bill
- (iv) The theater held over the movie--*The theater held the movie

The significance of the systematic type of verb-particle combinations should be immediately clear. Following Chomsky, 1964, we are assuming that the verbal element (be it a verb alone, a verb-particle combination, or some other type of compound verb) is selected in terms of the other syntactic categories in the sentence and in terms of their particular content. For example, the verb 'frighten' must occur preceding a noun phrase while 'sleep' may have no noun phrase following it. Furthermore, 'frighten' may occur only before noun phrases marked with the feature [+higher animate] since one does not frighten rocks or snails but only humans, dogs, cats, etc. Thus, for these systematic combinations where the restrictions on the verb and the verb-particle are identical, we require only one lexical entry for the two verbal elements and we can reduce the number of lexical entries by at least the number of verbs which share with particles a systematic relationship.

Within the class of systematic verb-particle combinations we find a number of subclasses some of which are more easily characterizable than others. The first most obvious subclassification involves those cases where the particle has retained essentially an adverbial sense of the formative as, for example,

- (10) (i) dish out, give out, hand out, pour out, serve out
- (ii) glue up, hang up, nail up, paste up, screw up, tack up
- (iii) deed over, give over, hand over, will over, sign over

We will call these cases literal systematic verb-particle com-

binations. A second subclassification we call completive systematic verb-particle combinations, where the particle, rather than having an adverbial force, causes the meaning of the verb to take on a completive sense, as, for example in the sentences

- (11) (i) The man mixed up the paint (stir, churn, shake, beat, roil, jiggle)
- (ii) She coiled up the rope (curl, fold, roll, wind)
- (iii) The woodsman broadened out his step (lengthen, widen, deepen)
- (iv) The garbage clogged up the drain (plug, jam, stop, block)

There is still a third subclassification, a residue, for which the effect of the particle on the verb is not, at least obviously, derivable from the normal meaning of the verb and the particle, nor does it appear to be of the literal or completive type, though it is clear that something very systematic is going on. Some instances of these cases are illustrated by (12).

- (12) (i) The woman sorted out the available goods (check, pick)
- (ii) The warriors fought off the attackers (fend, frighten, hold, scare, stand)
- (iii) The salesman marked off the items one by one (check, cross, scratch, tick)
- (iv) The man crossed out the entry (blot, line, pen, pencil, cancel, paint)
- (v) He noted down the remark (copy, pen, scribble, type, write)

Is there any way to characterize in some semantic terms which verbs combine systematically or, perhaps, which verbs combine in a completive-systematic or literal-systematic way? That is, are there any large-scale generalizations to be found which can account for some or all of the combinations? Whorf (1956) wrote about the completive systematic verb-particle relationship as we have defined it although he did not speak of it in the same terms. On page 70 we find:

"...the English particle 'up' meaning 'completely, to finish', as in break it up, cover it up, eat it up, twist it up, open it up can be applied to any verb of one or two syllables initially accented, excepting verbs belonging to four special cryptotypes. One is the cryptotype of dispersion without boundary; hence one does not say 'spread it up, waste it up, spend it up, scatter it up, drain it up, or filter it up'. Another is the cryptotype of oscillation without agitation of parts; we don't say 'rock up a cradle, wave up a flag, wiggle

up a finger, nod up one's head', etc. The third is the cryptotype of nondurative impact which also includes psychological reaction: kill, fight, etc. hence we don't say 'whack it up, tap it up, stab it up, slam it up, wrestle him up, hate him up'. The fourth is the verbs of directed motion, move, lift, pull, push, put, etc., with which 'up' has the direction sense, 'upward', or derived senses, even though this sense may be contradicted by the verb and hence produce an effect of absurdity, as in 'drip it up'.

Outside this set of cryptotypes, 'up' may be freely used with transitive verbs in the completive intensive sense."

We have already commented above concerning the phonological restrictions on verbs and Whorf's discussion certainly supports Kennedy's observations. It is rather interesting here that Whorf, in commenting on the semantic requirements for the completive verb-particle combinations, presupposes some complete set of semantic features for the language and then defines the combining verbs as those which do not have some specific subset of these features. Actually, if a semantic theory were worked out, it would be as easy, though perhaps not as efficient, to specify in a positive way which verbs combine. As one might expect, Whorf's definition of those verbs which will not take the completive 'up' is not without exceptions; for example, 'worship', 'covet', 'bury', 'candy', 'can', 'chide', and 'cancel' are among many which do not occur with the completive 'up'. Whorf did not go far enough and exclude enough classes of verbs though this is not surprising since we today do not have the formal apparatus to effect such a classification even if we knew definitely which verbs do and which do not co-occur with completive particles. That such a classification is possible is supported by the fact that when people are given a verb which ordinarily does not co-occur with the completive 'up' and which meets the phonological criteria discussed earlier, they almost invariably agree on whether or not such a combination is possible. For example, although we have the completive combinations 'hunt down', 'track down', 'trail down', there is no 'follow down' though almost everyone would view this as an acceptable combination in a sentence like 'The detective followed down the last remaining member of the gang'. Similarly, although we have 'speak out about the problem', there is normally no 'talk out about the problem' though this also is quite acceptable. And, while we find 'bake up', 'cook up', 'fry up', 'broil up', 'boil up', and 'brew up', we do not find 'roast up' or 'braize up' though here again they are all right. On the other hand, we find 'cache away',

'hide away', 'hoard away', 'pack away', and 'stow away' but there is no 'keep away' (where the sense of 'keep' is the same as 'cache') and it is felt that for some reason or another this is an unacceptable combination. These cases seem analogous to those cases in phonology where certain phonetic sequences such as 'stick' and 'trick' do occur, where certain sequences such as 'blick' and 'fick' do not occur and furthermore would not because they are unacceptable phonetic strings. Since the semantic theory is nowhere near as well worked out as that of phonology, we have no way of determining how close the analogy actually is. In any event, it is clear that for the completive-systematic verb-particle combinations we have no way of determining from any linguistic features now associated with a verb whether or not it will combine with a particle in this way.

Our understanding of the literal and other systematic verb-particle combinations is equally as ill defined with respect to which verbs combine and in what way. If we consider a class of literal verb-particle combinations

(13) dish out, feed out, give out, hand out, lend out, pass out, pay out, pour out, rent out, serve out, throw out, toss out,
we notice that each of the verbs involved contains the notion of conveying something to someone and that with the exception of 'dish out' and 'pour out', each of the verbs normally takes a following prepositional phrase traditionally referred to as an indirect object. Thus, we feel intuitively that there is some common semantic thread running through all of these verbs and that if we could only identify it, we could predict the combinations. But even if some classifying semantic features can be found, we will still have to account for the non-occurrence and unacceptability of the combinations like 'grant out', 'offer out', 'proffer out', and 'show out'. Perhaps these can be excluded automatically because of the semantic features associated with the verb; this remains to be seen, but they appear to be so closely related to the actually occurring verbs that they must be treated as exceptions. Similar comments can be made of almost all groupings of systematic combinations where a grouping has been constructed, as above, purely on apparent similarity of verb meaning. Of course we could reduce the size of the groupings so as to narrow down the scope of verbs but this is a meaningless exercise without any formal set of semantic features to deal with. Thus, lacking any general method of determining which verbs co-occur with particles and in which relationship, we are forced to mark each verb in the lexicon which takes a particle and specify exactly the type and

identity of the particle.

Assuming now that we have marked the verbs appropriately so that each is marked in the lexicon to show whether it co-occurs with a particle, which one, and with what relationship, what can we say about how to derive the semantic interpretation of the construction? Certain facts appear clear. For example, there is a consistent difference between the interpretation of 'broaden' and 'broaden out', 'lengthen' and 'lengthen out', 'widen' and 'widen out', between 'mix' and 'mix up', 'stir' and 'stir up', etc., and once we arrive at a characterization of these verbs in terms of some general semantic features, it should be a straightforward matter to develop rules for deriving the meaning of the entire constructions. What is of particular interest is whether or not these rules are of the same form as those necessary for deriving the interpretations of the various other higher order constituents, for example, for deriving the interpretation of a prepositional phrase from the interpretations of the preposition and the following noun phrase, the main verb from the interpretation of the verbal element, the direct object noun phrase and following adverbials (if any of these constituents exist), etc. It is impossible to draw any conclusions at this time.

Considering the unsystematic verb-particle combinations, for the most part there is nothing we can say about the relationship shared by the verb and particle. There are, however, two types of unsystematic combinations which appear to be derivable from other underlying base P-markers, namely, those in which a noun becomes a verb and takes a following particle and those in which a verb has a particle adjoined to it where the particle was originally part of a directional adverbial. Consider the sentences

- (14) (i) He glued down the loose edge of the rug
- (ii) She tacked down the rug
- (iii) The craftsman nailed down the board

There is, in fact, a sizable class of nouns such as

- (15) button, clamp, bolt, tack, nail, batten, pin, rivet, screw, glue, paste, cement, tape, staple

all of which occur in combination with 'down' to form a verb-particle combination. But notice that for each of these verb-particle combinations there is a sentence in the form

- (16) NP AUX fasten down NP₁ with NP₂

which has the same semantic interpretation and in which the NP₂ consists of one of the nouns in (15), 'fasten down' is a verb-particle combination, and the 'with NP' forms some sort of an instrumental adverbial, the exact nature of which has not been studied

very extensively.¹⁰ What is required here is a transformation which maps the P-marker (16) underlying into the derived forms (14). This is actually not such a radical transformation as it might initially seem since all that is involved is the replacement of a lexical item, the pro-verb 'fasten', by another lexical item. And notice that any noun occurring in a sentence of the form (16) may co-occur with the particle 'down' as in (14). Suppose, for example, a speaker of English learns that a 'dute' is a corkscrew-shaped shaft used to join two pieces of material together; on this information alone he feels confident in forming a sentence like those in (14) though this is for him a completely novel verb-particle combination. On the other hand, if one cannot 'fasten down something with milk' then one cannot 'milk down something'.

There may be exceptions to this paradigm but it appears to be very productive and accounts for many unsystematic verb-particle cases. Of course, we still have to account for the semantic interpretation of 'fasten down'. These nouns are not the only cases of verbalization. For example, we have the nouns

(17) box, fence, glass, rope, pen, set, screen, wall
which co-occur with the particle 'in' as in

- (18) (i) He fenced in the porch
(ii) They glassed in the enclosure

where the underlying sentence has the form

(19) NP AUX close in NP₁ with NP₂

and where almost the same transformation which accounts for the sentences in (14) can account for those in (18). We might point out here (and this comment applies to all of these derived cases) that for sentences of the sort (20i)

- (20) (i) He screened in the porch with the finest wire mesh available

- (ii) He closed in the porch with screen which was made of the finest wire mesh available

that only by positing that the underlying form is that in (19) can the grammar simply and automatically account for the co-occurrence restrictions between the verb 'screen' and the remaining part of the instrument adverbial 'the finest wire mesh available'.

Another similar noun class includes the nouns

(21) board, wall, glass, brick, cement, mortar

which occur with the particle 'over' as in

- (22) (i) They boarded over the hole
(ii) The man bricked over the entrance way

where the underlying form here is

(23) NP AUX cover over NP₁ with NP₂

Still another class of nouns includes

- (24) pencil, ink, paint, chalk, crayon

where these nouns combine with the particle 'out' to form sentences like

- (25) (i) The clerk penciled out the entry
(ii) The woman painted out the signature

Here the underlying form is

- (26) NP AUX cross out NP₁ with NP₂

and the comments are approximately the same as for the other previously mentioned cases.

The question arises as to the advantage of deriving such verb-particle combinations. Notice that most of the nouns given in the listings above never occur as verbs except in verb-particle combinations. Consequently, the combinations do not share a systematic relationship and they will have to be listed in the lexicon as individual verbal elements apart from the listings of the verbs or nouns with which they are associated. But we have already noted for the verb-particle combinations 'fasten down', 'close in', 'cover over', and 'cross out' that when they are followed by an instrumental adverbial, the underlying P-marker can be transformed into the corresponding noun-particle sentence with no change in semantic interpretation. This approach, therefore, appears to effect a simplification in the grammar. It is of course an open question whether or not specification of the necessary transformation rule here complicates the grammar more than the introduction of all the verb-particle combinations as distinct lexical items. This depends certainly to some extent on the number of additional lexical entries and the complexity of the transformations but no definite conclusion can be drawn.

Now consider the sentence pairs:

- (27) (i) He wiped the crumbs off the table--He wiped the
crumbs off
(ii) She cleaned the debris off of the sofa--She cleaned
the debris off

where the second sentence in each pair contains a reduced form of a directional adverbial, similar to the sentence (iii). But notice that for the class of verbs

- (28) brush, chip, clean, hose, mop, rinse, sand, scrape, scrub,
shave, sponge, wash, war, wipe

there occur as well the sentences

- (29) (i) He wiped off the table--He wiped the table off
(ii) She cleaned off the sofa--She cleaned the sofa off

An examination of the 'off' in the above sentences indicates that it

clearly must be analyzed as a particle and not as some reduced adverbial. In fact, the combinations can be analyzed as sharing a completive-systematic relationship. There are two alternative ways of introducing this particle into the P-marker. Either the verbs in (27) and verb-particle combination in (29) are accounted for by the grammar as unrelated to each other or one verbal element, here presumably the verb-particle combination, is derived from the other.

The first alternative means that the lexicon will contain, for example, two entries, one for the verb 'wipe' as in (27i) and another for the verb 'wipe' in (29i). (Recall that since 'wipe off' in (29) is systematic, the lexical entries for both the verb and verb-particle combination are the same.) This amounts to treating the verbal elements in the two types of sentences as unrelated verbal elements in the grammar. The other alternative requires that we define a transformation mapping the P-marker underlying the sentences in (27) into those underlying (29). Here again, as in the cases discussed above, we are faced with the problem of evaluating savings in the lexicon versus the addition of transformational rules.

This second approach raises an important question: is the semantic interpretation of a sentence with and without the application of the transformation which converts the sentences in (27) into (29) identical and if not, is there a systematic way of relating the semantic interpretations of the two types of sentences? The answer to the first part of this question is clearly no. Thus, if the approach outlined above is to be followed, the transformation must be obligatory.¹¹ The second part of the question does seem to be answerable in the affirmative, though this is impossible to verify without the formal semantic tools.

There are other similar classes of verbs, for example

- (30) beat, brush, clean, comb, dig, dry, empty, rake, rinse, scrub, sweep, wash, wring

which combine with 'out' to form verb-particle combinations in just the same way as those verbs in (28) combine with 'off'. Thus, we find the sentence pairs

- (31) (i) He brushed the stuff out of the room--He brushed out the room
- (ii) She raked the straw out of the stall--She raked out the stall
- (iii) The woman rinsed the coffee out of the cup--The woman rinsed out the cup

and the comments given above apply as well here.

FOOTNOTES

- 1 For a detailed discussion of this work, see Chomsky, 1965; Katz and Postal, 1964.
- 2 We use the asterisk '*' to denote sentences which are not acceptable English, the question mark '?' to denote those sentences which are not clearly acceptable.
- 3 These are the two extremes, and considerable examination of the noun phrase structure of English has revealed no general correlation between any noun phrase structures and the possibility of particle movement. This difficulty is compounded because it is almost impossible to get agreement on what is acceptable and what is not for many of the borderline cases. Length of the noun phrase by itself is not a factor since the sentence 'The student worked more than seven of the difficult examples out' is quite acceptable while 'The student worked the example which he recognized out' is not. Finally, in some cases where the following noun phrase does have a relative clause, the particle can be moved to the right of the modified noun but so that it precedes the relative clause, for example, 'He looked the information up that had been required by the professor'. Other than these facts, very little can be stated about the particle movement restrictions.
- 4 For a discussion of this type of nominalization, see Lees, 1960. Although the verb-particle combinations undergo this transformation where the verbs take the 'ing' ending in forming the noun, e.g. 'John's dividing up of the loot...', an acceptable nominalization will not result if a substantive ending such as 'tion' is placed on the verb, e.g. *'John's division up of the loot...'.
- 5 Whether the AUX should be dominated by S or whether S should dominate predicate phrase, PREDP, which in turn should dominate AUX and VP is not crucial here. All adverbials (most of which have the form of prepositional phrases in their underlying structure) are analyzed as prepositional phrases since there is apparently no way to motivate constituents such as LOC, TIME, MAN, DIR, etc., though we will often refer to them by their traditional names for the sake of exposition. The motivation of these adverbial constituents entails a way of characterizing each in terms of its syntactic patterning; this does not appear possible, one discovers, when an attempt is made to establish criteria for a class of phrases which are traditionally considered to be of one type or another. The

distinction made here between those prepositional phrases dominated by VP and those dominated by MV is that the former are general adverbial modifiers of time, location, etc., where the particular preposition is selected by the noun phrase of the adverbial, while the latter contain prepositions which are mentioned explicitly as a part of the lexical entry for the verbal element, V, itself. In this way we distinguish syntactically the underlying analysis between 'talk about the problem' and 'run into the woods'. A detailed discussion of this is forthcoming.

- 6 There are a couple of exceptions to this statement, one of which we have indicated in footnote 4. We will overlook them, however, in the following discussion.
- 7 Following the analysis presented in Chomsky, 1965, the verbal element already dominates a bundle of features (including the feature [+verb] which characterizes the verb of the sentence).
- 8 Lakoff, 1965, discusses this syntactic feature in considerable detail. Roughly these are verbs like 'hear', 'see', 'feel', 'smell', etc., which do not occur in the progressive form and do not have an imperative.
- 9 Kennedy didn't use the term particle and our reference to it must be viewed as an interpretation of Kennedy's findings in terms of the framework we have assumed.
- 10 It has been suggested by Lakoff (personal communication) that the origin of sentences like 'He broke the window with a hammer' is 'He used a hammer to break the window'; thus, the P-marker underlying the sentence type in (16) may itself be derived. This doesn't alter the argument being presented here.
- 11 See Katz, and Postal, 1964, in which they discuss the motivation for requiring any meaning changing transformation to be obligatory.

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First Panel: PROBLEMS IN SEMANTICS

Chairman:

Jacob Ornstein
Graduate School
U. S. Department of Agriculture

Panelists:

John L. Fischer
Tulane University
Charles J. Fillmore
Ohio State University
Gerhard Nickel
University of Kiel
James B. Fraser
United States Air Force

Discussants:

D. Terence Langendoen	Robert Rainsbury
Ohio State University	New York University
James D. McCawley	Andras Balint
University of Chicago	New York University
Lloyd B. Swift	Wesley C. Panunzio
Foreign Service Institute	Southeastern Massachusetts Technological Institute
Robert J. DiPietro	Soenjono Dardjowidjojo
Georgetown University	Georgetown University
William Orr Dingwall	Michael Zarechnak
Indiana University	Computer Concepts, Inc.
Helen Berezovksy	
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LANGENDOEN : Prof. Fillmore, do you think there might be well-motivated syntactic reasons for retaining the subject-object distinction in the sense of 'Aspects' (cf. Bibliography, 60) where there is discussion of the role structure plays in determining deletions, for instance, in embedded clauses. Rosenbaum (cf. footnote 1, 215) shows that deletions can be systematized, in cases like this, through comparisons of subjects and objects. Involved in this systematization is the principle of 'distance' determined by the phrase-marker. Rosenbaum's principle does not seem to apply to the underlying phrase-markers you have suggested.

FILLMORE : I believe that this principle applies only to surface structure, where I would recognize subjects and objects. I was concerned with the deep structure relevance of the notion 'subject'. For example, if this notion applies to the subject of a passive sentence, it is the embedded sentence that is passive.

LANGENDOEN : Take the example of a transitive verb with a complement, for example, 'I told John to go', where the subject of the infinitive is the object of the verb. Can you work out in your formulation a derived phrase marker at the point where the deletion is to be applied?

FILLMORE : If these rules are cyclic, the subject will have been provided by the time this deletion rule applies.

McCAWLEY : While some of the phrase structure rules proposed by Prof. Fillmore do correctly account for differences in combinations of noun phrases, I do not feel that in his discussion of examples like 'The door opened' and 'The janitor opened the door' that he has established any more relation between these examples and other possible ones, such as 'John died' compared to 'The janitor opened the door'.

Secondly, with reference to sentences Prof. Fillmore discusses such as 'John willingly took advantage of George' and 'George was willingly taken advantage of by John', I would distinguish two possible kinds of manner adverbs. One type refers ambiguously to either subject or object, and attributes, in the examples cited above, 'willingness' to either John or George. The other type is ambiguous, as in 'John was cruelly beaten by George', where the 'cruelty' involved is clearly George's, not John's. I would maintain that these have to be analyzed as sentences embedded within sentences.

FILLMORE : I would accept this interpretation, and agree that there are at least two types of manner adverbs. As for relatedness observations among the quoted sentences, I would say that they all have the same verb, that for one the ergative is specified,

for another the ergative and agentive, for another the ergative and instrumental, and for the other the ergative, instrumental and agentive. I don't know in what 'more real' sense you can speak of these particular sentences being related.

SWIFT : The verb 'get' in English is peculiar, yet you have no references to it in your paper: we can have 'He got up a party' or 'He got a party up', 'He got it up' but not *'He got up it'. We can also speak of 'the getting up of a party' or of 'the getting of a party up', I believe. 'Get' also occurs intransitively, as in 'He got up', or transitively in 'He got his roommate up' which can be nominalized in 'the getting up of his roommate'. In other constructions, we find verbs in the particles' position, as in 'He got married', or 'He got hit'. How would you handle these, in view of your statement that verb + particle constructions are not nominalized?

FRASER: Actually I did mention 'get' and stated that it combines with all particles except 'forth'. The 'up' in 'He got up' I would analyze as a directional adverbial, not a particle. As to your third point about nominalizations, recall that I stated that whereas the verb-particle combination can be nominalized if the 'ing' ending is placed on the verb, as in 'the dividing up of the loot', an unacceptable nominalization results with any other ending, as in 'the division up of the loot'. Finally, although the 'married' in 'He got married' occurs in the same position as a particle, it is clearly not to be analyzed as such.

DiPIETRO : How would you deal with verbs with two particles, such as 'put up with' or 'get on with', etc. ?

FRASER : I would consider these forms, not as involving two particles, but as having a particle followed by a prepositional phrase. For instance, one can say 'With whom can you put up' but not 'Up with whom can you put'. Similarly we find 'About what did he speak out?' but not 'Out about what did he speak?' I have found no evidence indicating that there is more than one particle associated with a verb, at least not in the sense in which I have defined the verb-particle construction.

DINGWALL : In your article in P. O. L. A. (Project on Linguistic Analysis, Report No. 11, 1965) you compare English, Chinese and Japanese in terms of their deep and surface structure, but seem to find them very different: do you think that you would find greater similarities through the application of this new model you have proposed?

FILLMORE: Yes.

BEREZOVSKY: Prof. Fischer, have you considered the pos-

sibility that your optional me may behave like English that, which is optional in examples like 'I saw the car that he bought' or 'I saw the car he bought'?

FISCHER: Interestingly, the Ponapean form me corresponds to English 'that' in more than the relative clause use. It is also used to introduce indirect (and direct) quotations after the Ponapean equivalents of English verbs such as 'say', 'think', 'decide', 'believe', etc., e.g. e nda me re kohla 'he said that they went'. As with English 'that', me in this sense may be optionally omitted: e nda re kohla 'he said they went'.

There is also a form me used as a demonstrative pronoun meaning 'this' (not, to be sure, 'that' but fairly close), e.g. tuhke da me, literally, 'tree what-kind this', i.e. 'what kind of tree (is) this'. I am not sure whether these parallels of use have any deep significance, and am especially dubious about the last.

As one would expect, not all instances of Ponapean me can be automatically translated as simple English 'that'. Often it is better translated as '(the) ones that' or 'those who', e.g. ia du-en me kola-hn idi-pil koa, literally, 'what (is) the-happening to ones-that went for fetching water the', i.e. 'what happened to the ones that went to fetch water'. me is also used in the Ponapean equivalent of a predicate adjective construction: seri o me lawalo, literally, 'child the one wild', i.e., 'the child (was) a wild one' or 'the child was wild'.

RAINSBURY: Lt. Fraser, I am not clear about your distinction of categories 4 and 5. You speak of the particle in 5 as completive. I think the particles in 4 are completive as well. In both, the particles are deletable, I believe. Are they distinct?

FRASER: The distinction I made is rather arbitrary. I used 4 to indicate the systematic cases and 5 to indicate the completive ones. It would appear that some in 4 are also completive, including, perhaps, 'stow away', 'stash away'. I'm not sure that the distinction I proposed can be clearly motivated.

BALINT: Lt. Fraser may have confused syntax and semantics in his analysis of two-word verbs. Considered syntactically, these verbs show two positions, with the particle before or after the object. Semantically, there must be an additional meaning because of the additional form. In most of your examples, I think the meaning is generic. The problem arises with verbs where a generic meaning cannot be assigned to the particles, e.g. 'to look up something', 'to take down numbers', or 'to run into someone'. Here, I think, only semantic analysis is applicable and we cannot combine semantic and syntactic analysis in a transformational

grammar of the kind Lt. Fraser has suggested.

FRASER : On the contrary, both a syntactic and semantic analysis of this construction is necessary. As I indicated in my talk, the verb-particle combination is distinguished from other superficially similar constructions in terms of syntactic considerations; thus, syntactically the sequences 'look up' and 'stow away' are both examples of the verb-particle construction. This has nothing to do with semantics. The fact that the particle under certain conditions may be positioned either before or after the direct object noun phrase is analogous to the fact that there exist non-meaning changing syntactic variations for a given sentence, for example, 'John slept until five o'clock' and 'Until five o'clock, John slept'. A main point I was addressing was whether or not we can expect to derive the semantic interpretation of the various types of these combinations. At this point I feel that the meaning of 'look up' must be stated specifically for that combination while I think it will be possible to derive the meaning of systematic combinations such as 'stow away'.

BALINT : I think there is a semantic difference between the sentences - emphasis, perhaps.

FRASER : There may be a difference of emphasis, but this would be at such a level that we can't say anything sensible about it.

PANUNZIO : Prof. Nickel, would you discuss the function of a word creating new properties for it, affecting the inherent properties, and the inherent properties of a word as characterizing its function, and shaping its function?

NICKEL : I do not believe in the creativity of words, nor in the creativity of context. I would say that it is only through a word's functioning that its inherent meanings become clear. I do not pretend to deal here with what meaning is - Antal (cf. footnote 5, 41) says we'll never know what it is - so I would merely say that contexts make the inherent qualities clear.

DARDJOWDJOJO : Prof. Fischer, does the use of the relative pronoun me have some relation to the emphasis of the question-word object placed at the beginning of a sentence? In other words, does a construction like 'You are carrying what?' occur in the language? If so, is a sentence beginning with the question-word object some kind of transform of such a sentence? If this is the case, does not the transposition of a question-word object like dahkot to the beginning of the sentence make me obligatory? If this is the case, the presence or absence of me may not distinguish adult from childish language but rather be a syntactic-semantic

feature. I base the question on the analogy of other Malayo-Polynesian languages.

FISCHER: The order of words in dahkot me ke weuwa 'what (is it) that you are-carrying' is the normal order for this question. It is not emphatic. Whether it is possible to say *ke weuwa dahkot 'you are-carrying what' I am not sure. In a declarative sentence in Ponapean the object does normally follow the verb, but in the corpus which I have examined there is no instance of an interrogative object following its verb in a question. I am reasonably confident that an interrogative might follow a verb if two interrogatives were used in a single clause, but have no examples and do not trust my own speaking knowledge enough to provide examples for such a rare construction.

ZARECHNAK: Lt. Fraser, when we transfer from English to Russian words with 'up' they are translated in Russian by a bound morpheme denoting perfective aspect. Perhaps the meanings of the English particles could be operationally related to languages where aspects are morphologically expressed. In Russian, for example, 'to sober' is trezvet' and 'sober up' can be vytrzvet' or atrezvet'. When the latter form is used, there is also a mandatory of optional preposition phrase, while when the imperfective aspect is used, an adverb, rather than a prepositional phrase is preferred. Would this type of correspondence be useful in classifying English semantic patterns, where the morphological systematic markers are absent?

FRASER: I don't know enough about Russian to judge if this correspondence holds for all of the completives. On the supposition that it does, your suggestion is worth further investigation.

FIRST LUNCHEON ADDRESS
LINGUISTICS AS ANTHROPOLOGY

LINGUISTICS AS ANTHROPOLOGY

GEORGE L. TRAGER

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Father Dinneen, fellow anthropologists, ladies and gentlemen: I hope that by specifically mentioning 'fellow anthropologists', I have not offended anybody. As you will see from what I say, I consider you gentlemen who are our hosts at this meeting, and all the rest of you, to be fellow anthropologists, whether you know it or not. And I hold that anthropologists too are ladies and gentlemen, as the case may be.

I should like to start with a few general definitions or descriptions, then go on to specific instances illustrating the generalities, and perhaps, before I stop, come to some conclusions. Let me point out right away that what I have to say is not new, it has been said before, by many persons and on many occasions, and I do not expect you to have your inner beings shaken or your futures altered by it. Yet, since apparently much of this kind of talk has fallen on deaf ears, it is, I think, worth venturing to say it again. Perhaps some new twist of style, or possibly mere reiteration, will make for conviction this time. And from those of you who are already convinced, and know all these things, I can only ask indulgence, and remind you of the comparative value of one sinner repentant as against the ninety-nine already saved.

As I generate this discourse - elegantly, I trust - I hope that you will all be able to transform it into grammatically meaningful kernels of wisdom, or something, and thus make significant mountains out of the moleholes of trivia I present you with.

I have said elsewhere, some years ago, that 'linguistics is linguistics'. Those remarks have been published under that title, and I could refer you to that work for further definitions, and leave it at that. But I think that few if any of you happen to have a copy of that paper handy, and even I haven't brought one with me. So I shall quote instead of referring. As the author of those remarks, I allow myself the privilege of quoting myself with some editorial license (though of course I should expect anyone else to quote me exactly!).

Linguistics includes the study and analysis of languages. This remark is too simple, however, and will have to be expanded. By expanding it we shall see what is meant by treating linguistics as anthropology.

Linguistics includes: language teaching; writing textbooks for language teaching; teaching linguistics; using machines to record language data, including the recording of sounds and utterances, and the use of computers for high-speed analysis. Linguistics includes psycholinguistics (please think of this as written without a hyphen, because if you think a hyphen after the o, you will say it with undue emphasis - and maybe even a secondary stress - on the first part, and I wouldn't want you to do that). Linguistics includes collaboration with other students of human behavior - psychologists, psychiatrists, literary fellows, and just plain people.

Regardless of which of the mentioned activities a linguist engages in, or how many simultaneously or consecutively, he must behave not primarily as a language teacher, or a textbook writer, or a logico-mathematical theoretician, or a computer-programmer, or a machinist (or should I say engineer?), or a psychologist, or a psychiatrist, or even as just a member of what I have called 'plain people'. No, he must behave according to some well-established rules.

First of all, the linguist must take his data as they come to him - all of the data, not just those that fit some theory - and must not ever sweep any part of them under any kind of rug, theoretical or philosophical. Such sweepings -under come to light eventually, and may - to mix a few metaphors - turn upon and bite the sweeper. Then, in analyzing his data, the linguist must test his hypotheses, discard those that do not fit the data, rather than discarding that that don't fit the hypotheses, and must then formulate his conclusions to take care of all the data. In analyzing and formulating, the linguist must never forget that he is dealing with that very special and very real kind of reality which

is people behaving. People say things (or write them); other people say (or write) replies; the interlocutors, and others, behave in accordance with what is said, or with what they think (i.e. say to themselves) is said. Things happen, the world moves, as consequences of the talking. Everything anyone says is 'grammatical' - in the sense that only that which has been learned as part of the total culture can be said. And everything that is said has to be analyzed and taken care of in the analyst's summarizing statement. Nothing can be dismissed, nothing can be called trivial. No one can predict everything that is going to be said, because the human mind is capable of infinite inventiveness, and what you don't generate today, I may generate tomorrow. What is more, by looking only into one's own intuitional depths (do you shudder at the picture? - I do!), one doesn't get away from the necessity of recording data as data, and one doesn't get to any kind of universals. For in those depths, one can only find what one's own society has put there, and one can only say what one's own society has taught one to say, in one's own language.

Anthropology as a whole is the study of human culture. Culture may be defined as the system of systems of behavior in terms of which the members of a society interact. All human beings live in societies, and all societies have developed, over the last million and a half or more years, a vast complex of systems of behavior. All aspects of human behavior are in one way or another stated or described or stimulated by speech. Language is thus both a part of human behavior - a system within the totality of cultural system - and also the vehicle or medium of expression of all the other systems. There seem to be some other media of expression somewhat analogous to language: the making of artifacts may be mentioned as seemingly analogous in many ways to language.

All the cultures of all human societies concern themselves with certain basic areas of behavior. All cultures have to do something about the passage of time and the place where the bearers of the culture have their existence; and this existence itself must be 'explained' in its place and time. All cultures must confront the biological facts of there being two sexes, and the various stages of growth and maturity of the members of each sex. Every culture needs to explain to its own satisfaction what can be learned and what must be taught and how to teach it. Every culture has a language, a language uniquely fitted to that culture. Every culture uses the available natural resources to make things out of, and develops technologies of greater or less complexity.

All cultures include systems of values, by which the material goods produced by the technology are judged and ranked and prized, with all other values depending on them. Every culture must develop systems of using energy, of getting people to work at the using of energy, and of restoring expended energy and recuperating from the work. Every culture finds ways to control individuals for the good of the group and to control the group for the good of the individuals, developing law and government, and accompanying systems of politics. And every culture must work out relationships with what it considers the supernatural, and must have a religion - the rule and the way of life.

Language is used to talk about all the basic cultural systems, to elaborate numerous subsystems, to invent further refinements and elaborations. And since language is itself a structure, a cultural system, a kind of artifact, it follows that the linguistic structure affects the non-linguistic systems by what it expresses and what it leaves unsaid, and the non-linguistic systems impose on the language, as it were, the necessity of expressing whatever needs to be said or talked about.

Every society has some kind of calendar, and a whole series of ways of talking about time. These ways of talking condition every moment of the life of individuals in their society. In today's United States, it has become customary to record the exact minute and even second of the birth of a child. Without inquiring too deeply into the secrets of our medicine men, to determine just what they mean by the 'exact' minute of birth, I simply point out that this custom is not a non-significant technicality. For one thing, if a birth takes place near midnight, it is important - so the culture says - to determine whether one is born on Friday the 13th at 11:59 PM or Saturday the 14th at 12:02 AM. And if the midnight happens to be that of December 31, then a minute or two of difference makes a difference in one's birth year and month and day, and makes a difference to father of one more or one less income tax deduction. The way we tell time, made technically precise by the machines we have invented (clocks), affects the identifying statements we make about a person's age, and such statements have an effect in other parts of the culture, seemingly far removed from the little detail of time - on the income available to the parent for his work, and on finances available to the government through its tax collection.

Or consider for a moment that a pre-Conquest Maya in Yucatan had to say, for instance, that the moon went through its phases in a 'month' and a half, equal to six 'weeks', and a child was born

13 1/2 months after conception. You will recall that the Maya year was divided into 18 months of 20 days each, and each month had four 5-day periods that we can call weeks for the present purpose. There were then 72 such 'weeks' in a year, and there was an extra week, the last five days of the year that belonged to no month, and was a time of sorrow and evil. If the Mayas had told time the way we do, one born at 11:59 PM on the 20th day of the 18th month would have been lucky indeed, for to be born during the 73rd or extra week was the height of misfortune.

You might say that in modern times such things don't happen. But I ask you to remember that in teaching English to Africans, telling them about being in England 'now that April's here' or about 'gathering nuts in May' makes no sense at all. In fact those two cited phrases don't even make sense to an American, who is quite content to be where he is in April, and doesn't know what kind of nuts one could possibly gather in May. And as for an Australian, maybe there are some few nuts left to gather in the early winter month of May, and maybe he would like to get away from the late fall chill of April, but he probably wonders, from what he's heard of English heating, whether it wouldn't be colder in England.

I think the 'late fall chill of April' and the 'early winter month of May' have perhaps made my point so that I need not belabor it. The most pedestrian language teacher, the most technically minded generational grammarian - even these must realize from such simple examples how very much one must pay attention to the culture outside the language. The 'snows of Kilimanjaro' are very different culturally (in regard to time and a lot of other things) from the snows of Sun Valley, Idaho, and no amount of rules can generate kernel sentences to make them the same, or even equally grammatical.

Let me turn now to another area of culture, and adduce some equally simple and yet equally troublesome examples. Thomas Jefferson gave us a decimal coinage, because, I suppose, pounds, shillings, and pence were just too cluttered up for anyone in his right mind, but he never did anything to feet and inches and yards and miles, or bushels and pecks, or pints and quarts and gallons, or ounces and pounds. All systems of weights and measures are elaborations within the cultural treatment of space and distance and orientation. We are all supposed to be happy and contented with our weights and measures, and anytime anyone proposes any change, screams of anguish ring out over the land. It was only a few months ago that a learned congressman from an area near

here, a steadfast upholder of all the tried and true foundations of the republic, bottled up a measure to put the metric system into general use in this country by remarks about gills and pints being good enough for him. If I remember, a gill is one-fourth of a pint, which makes it four ounces, and that's a pretty stiff martini! The statesman would be most unhappy with a drink that measured 113.2 grams at 4° centigrade, I suppose, or a hip-flask that held 453 cubic centimeters; somebody should have told him that a half-liter flask would hold 10% more than a pint, and if he ordered double deciliter drinks, he'd get 200 cc, or 76% more than four ounces. Some of you, at least, are amused by this silly exercise in mathematics. But it isn't really either silly or mathematics. It is the very warp and woof of an important segment of our culture, and one that starts with measuring.

I'd like to give you one more example. Many years ago I was walking with my late first wife from my pension into the town of Dubrovnik in Yugoslavia. Near the town limits we passed a building with a wall thermometer. We had been remarking that it was warm for the middle of the morning, but we were not uncomfortable. When we saw the thermometer we read it, and found that it said 50°. My wife said, 'How much is that in real temperature?' I took out of my pocket the ready converter of centigrade to Fahrenheit that I always carried with me; there were no computers in those days, but a simple algorithm (we called it a 'rule') I had learned in high-school did the trick just as quickly. I found out that 50° was 122° in 'real temperature'. At that discovery, both of us suddenly felt very warm indeed, and we had to quickly repair to the Gradska Kafana (the so-called 'City Coffee-house', next door to the cathedral that rivalled St. Mark's in Venice through the Middle Ages), to consume cooling liquids (not coffee!) and reduce the cultural shock.

Skipping over many interesting areas of culture, let's go to the matter of pay for one's work and all that sort of thing. When I was a child my parents used to take me and my brother to the movies once a week. It cost a nickel for children and ten cents for adults, and we saw an episode of The perils of Pauline, with Pearl White, every time. (Incidentally, as I remember it, it beat 'Batman' all hollow for thrills!) I recall reading that Pearl White got paid \$100 a week, for a total of \$5000 a year, for her acting. The vast salary that entertainers made impressed me, but even then I wanted to be something poor but honest, like a professor. Last November I went to the meeting of the American Anthropological Association to recruit an anthropological linguist

for my department. One young man, very self-possessed and learned, but nowhere near as pretty as Pearl White, informed me at the start that, whether or not he finished his almost-completed dissertation, he couldn't possibly consider coming for less than \$10,000. In my inner consciousness, \$5,000 is still a lot of 'money, though it has been 20 years since I myself made that little, and the young man (by asking for twice that 'much') really put himself out of the running by his remark. (Of course, the person we are hiring will get \$10,000, and also wouldn't come for less - but that's the way one's idioculture plays tricks with words and their timing.)

In many places where languages are taught, and especially where there are area programs, we find courses in the 'civilization' - as it is called - of such and such a country. The idea is good. Unfortunately, such courses usually take the point of view embodied in the lectures on '*la civilisation française*'. If the student gets anything out of such a course, it is that the French 'they are a funny race' or some such ribald notion; that French food is rare and wonderful, if you only can find that especially dark and dank hole in the wall unaffected by tourists (if you happen to be allergic to garlic, or like your food relatively midly flavored, as in your culture, you're just a philistine and it's your hard luck); that French politics is incomprehensible, but the French are really as democratic as we are, even though they tolerate Communists; that the French are really the most moral people on earth (by whose standards?), although of course Paris is the world's wickedest center of sin and gaiety; etc., etc. (Some people tell me that the last remark no longer applies - it's Tokyo nowadays. But a lot of people don't know the Japanese equivalent of '*Voulez-vous...*', so I suppose Paris still flourishes.) What I'm getting at is that the non-anthropologically-oriented lecturer on French civilization is likely to stress superficialities, or to go in for philosophical discussions about politics, or Culture with a capital c, or what have you. To study la civilisation française or any other kind of civilization (even that of people who would be called uncivilized by many), you have to have a frame of reference in terms of which you can find ways of classifying and arranging the data in your sources. If your sources are texts, you must really know the language in all its aspects. And you must also know your anthropology. The American child is admonished 'Be good!'; the French child is told, 'Sois sage.' In discussing the different implications of these phrases, if they are different, how shall we translate? Shall we tell the French reader that American

mothers say 'Sois bon'? If we do that, we'll have to explain what goodness is in the total concept of American life, bringing in such matters as the so-called Protestant ethic, the historical English idea of being good enough to 'muddle through', and so on. And if we translate the French phrase into 'Be wise', we must really work hard at explaining what wisdom is in the French scheme of things. Leaving French and English, I don't know what one says in such situations in any other language. I do know, however, that in the Taos language, a mother cannot say 'Be good' or 'Be wise', because first of all there are no 'imperatives' in the language (another 'universal' that isn't so!), and there are no 'adjectives'. One can say 'You [sing.] will be good', literally something like 'it [impersonal] will perform the act of constituting goodness upon you'; I may add that forms of this kind have pronominal reference morphemes that are synonymous with other forms of different meaning, and only the metalinguistic context tells you who is doing what and to whom I wonder how Taos children manage to grow and be good.

I've mentioned translation, and this brings me to the last thing I want to put before you. Some of the best work in linguistic analysis being done these days comes to us from missionaries. The Wycliffe Bible translators - the Pikesters as some irreverently call them - are known to you all. The data they give us are usually excellent. And they have all been told that they need to know about anthropology, and some of them do know. Their search for translation equivalents constantly presents them with problems of considerable magnitude. Before they can resolve any of these problems, they have to analyze the language in its own terms, then try to analyze the non-linguistic culture, then match up the analysis of the language with a suitable analysis of English (not to mention Greek and Hebrew), then try to match up non-linguistic culture with the translator's special but un-self-analyzed version of American culture, then match the English language to this version of American culture, then match the native language to the American culture, and then - and only then - begin to match up all these cultural systems together to try to produce something that will still be recognizable as a version of the Bible. A member of this group recently got a Ph.D. under my direction, analyzing the Rio Grande Tewa language; I've never asked him how he would put 'a land flowing with milk and honey' into Tewa, but I think it might be hard: the place where the Tewa have lived for the last 1000 years perhaps is dry and barren and brown, and flows even with water only when irrigated; the Tewa

didn't have cattle before the Spanish came, they still don't have many, they don't drink milk, and even the children have it only when the local school district gets a school-lunch program from the government, and hands out free milk; and honey comes in jars at a high price, and who needs it when there's sugar to be bought. For that matter, how do you convey the message of 'a land flowing with milk and honey' in modern English to a technologically oriented society?

And so, as they might say in the travelogs, I leave you, my fellow anthropologists, before the sun sinks slowly into the West.

PANEL II

HISTORY OF LINGUISTICS

THE HISTORY OF LINGUISTICS: NEW LAMPS FOR OLD

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History is the study of events which have important consequences.¹ The historian makes a selection among reported events from the point of view of the consequences in which he is interested, and he weaves them into a reconstructed fabric of explanation for whose validity the truth of the events serves as confirmation. He is in the same situation as scientists in general, who select their data according to prior expectations, and use them as empirical constraints on present theoretical knowledge. In either case there must be selectivity; all the data cannot be taken in from any given perspective. The point of view determines the facts considered, and points of view change not only with new factual discoveries, but perhaps even more commonly with new decisions, often implicit, that bring one or another range of facts into perspective, and correspondingly allow others to become peripheral.

When the point of view changes, when new perspectives are adopted, different areas of research are opened, and it becomes necessary to reexamine received tradition, and to rewrite history. When the point of view changes, furthermore, the history of ideas assumes a more than normally important role. Giddy speculation is sobered by the realization that few ideas indeed are new in the sense of not having predecessors, and it is given salutary restraint by the knowledge of past mistakes and successes.

In American linguistics, the past decade has seen a definite change in point of view. Whereas the advice dominant among our immediate predecessors was to avoid theory and stress facts, precisely this emphasis on facts has now led to a growing realization that theory, if only in our inability to dispense with preconceptions, is there whether we like it or not and must be dealt with. It has been the achievement of what may now be called the Bloomfieldian era to show us that there are more linguistic facts around than we can make sense of without a guide. We are therefore forced today to stress the complementarity of theory and fact.² The corresponding change necessary in the history of the field is a restudy of the sources with special attention to the theoretical concerns of the past, even when these can only be inferred. There is a balance to be redressed in the history of linguistics.

These are the theses of the present paper. In it I hope to support further the need for a new history, and briefly to point out several areas where we can find forgotten facts of relevance.³

The need for a new view of the history of linguistics can perhaps be seen most easily against the backdrop of a summary of an American position which has been standard.⁴ Here we find the following main points:

- Linguistics is not yet part of general knowledge; this is the fault of classical and medieval Western scholars and their iron grip upon the popular mind.
- The Greeks mostly speculated uselessly on language; when they did happen to observe a few linguistic facts, their results were swamped in the flood of aprioristic games.
- There were no new ideas in the field until the eighteenth century, and eighteenth century ideas were if anything a step backward, wasting time on the origins of language and on normative grammar, describing languages within preconceived and ill-founded frameworks, confusing sounds and letters and ignoring the sounds of speech. This was true in spite of the fact that by this time many languages had been described, although in superficial fashion.
- The rediscovery of the ancient Hindu grammar, based not on theory but on observation of facts, set in motion true empirical linguistics, on the one hand, and comparative Indo-European studies on the other. On this basis general linguistics emerged in the nineteenth century, alongside history and description.
- The twentieth century merged these studies into a science of language, on an empirical-descriptive base. The present need is

to persuade the popular mind to accept our findings, and to reject useless speculation.

At this point I shall not attempt detailed criticism of this picture of the history of linguistics, partly because I shall deal with many of its point in the sequel, but also because I believe mere presentation of this outline suggests to today's linguists where the main imbalances are to be found. Let me simply underline them here. All are associated with the selective emphasis flowing from the stress on fact and distrust of theory characteristic of the Bloomfieldian era. Since theoretical speculation was not thought to lead to important consequences, its history is treated as briefly as possible. The ideas which are taken to be important are those which are thought to lead to the attitude toward linguistics shared by Bloomfield and many others, which was heavily loaded on the side of immediately observable facts.

To say this, it must be immediately added and strongly emphasized, is to state a situation and not to condemn. There was a balance to be redressed in Bloomfield's time as well as ours, and he saw it as requiring a healthy skepticism of all-embracing systems, a perfectly defensible view. There have always been two strains of inquiry in the study of language, one concentrating on analysis and direct observation of data, the other preferring to explore the possibilities for systematic explanation. Together these strains can supply the interaction of fact and theory which any science requires. Whether a given scholar prefers to lean in one or the other direction seems largely tied to differences of temperament, though of course sociocultural facts are all important in determining which way the selection of scholars goes at different times and places, in this respect as well as others. In the Bloomfieldian era, the dominant attitudes can be seen as a reaction, constructive in the main, to the heedless system-building which perhaps had its peak about the turn of the century. Recent insights into the nature of language, which have reawakened our interest in abstract theory, are firmly rooted in the careful and precise data-oriented studies inspired by Leonard Bloomfield more than by any other single American scholar.

It remains reasonable even *a priori* to doubt, in the light of our new-found appreciation of the role of theory, whether past speculative study of language can have been so completely barren as it appears from the tradition summarized. And if, with the benefit of hindsight, we now look back toward the past development of the study of language, we find all sorts of familiar ideas, and even ideas which were new to us only a few years ago. It seems certain

that more careful study than I have yet been able to give the subject can find more than this, can perhaps even point out to us some directions in which we should now be looking.

The background of modern linguistics begins with practical concern for problems of language. Two practical concerns lie at the base of the two extensive grammatical traditions which we know to have arisen in ancient times, those of the Greeks and Hindus. The first is the development of an alphabetic system of writing, and it was above all the theory developed in this area which gave the first impetus to the Greek grammatical tradition. In India, grammar seems first to have arisen from a second practical motive, the need to interpret classical (oral) texts, the Vedas, although the designing of the Hindu script, apparently the only other independent alphabetic writing system⁵ known to us, must also have stimulated inquiry here as in Greece.

The second motive, interest in classical texts, was also important in Greece, where the study of the Homeric epics led directly to an elaboration of grammatical theory. Scholars in both countries developed phonetic and semantic theories of some complexity and interest in connection with these two practical needs. Similar problems led to the two other semi-independent developments of grammar, the Syrian-Arab-Jewish and the Chinese traditions, both of which had beginnings about as ancient as those of Greece and India, but experienced their full elaborations later under Greek and Indian influences. A third practical concern, still much alive, arose with the expanding of cultural horizons and the need to understand foreign languages. This was operative in the West above all through the proselytism associated with the Christian faith, and from at least the fifteenth century, missionary grammars have been perhaps our principal source of descriptions of the lesser-known languages.

Much earlier than this, however, and in all of the areas of the world where language was studied, the true precursor of modern general linguistic study was already active, and not always tied to directly practical motives. This is the interest in language which comes from the fact that it is a primary symbol of human distinctiveness, and more especially, that it is through language that thought becomes manifest. But one also needs a clear distinction between language and thought, and, although it seems to be rarely if ever true that serious students of language confused sounds and letters, the confusion between thought and language was almost omnipresent. The order of words is assumed to follow the order of thoughts, for example, and an important chapter

of grammar is consequently overlooked.

Perhaps the beginning of a linguistics autonomous of both philosophy/psychology on the one hand and of directly practical work on the other is found in the book of Wilhelm von Humboldt rightly referred to by Bloomfield as 'the first great work on general linguistics'.⁶ But he fails to point out the fact that Humboldt, who clearly distinguishes thought from language and directs his efforts toward exploring the nature of language, achieves in his ideas precisely a sort of merger between two movements pictured in our standard received histories as harmful or at best irrelevant: general grammar and philosophical grammar.

Of these more later. For the present, the lesson is that although it is not in a sense incorrect to say that the science of language as an autonomous study arose in the nineteenth century through such studies as Humboldt's and those of comparative grammar, its precursors are not properly recognized in the American version of the history of linguistics.

Hindu grammar ranks highly indeed, as we have seen, among studies considered important in our standard historical view. And yet all that is usually cited is the description of Sanskrit due to this tradition; no inkling is given that already in ancient India there was considerable theoretical study of the nature of language, and a continuing tradition of both analysis and theory, continuing, in fact, to the present day. One example of Indian results should suffice to show the relevance of this work: this is the *sphoṭa*-doctrine.⁷

The first great monument of Sanskrit grammar is the *Aṣṭādhyāyī* of Pāṇini (fifth or fourth century B.C.). Among many other important works, the others of main concern for present purposes are the *Mahābhāṣya* of Patañjali (second century B.C.) and the *Vākyapadiya* of Bhartrhari (c. seventh century A.D.). Apparently first in Patañjali, it is assumed that the *sphoṭa* (lit., 'that which bursts forth') of a linguistic unit, its fixed underlying structure, must be distinguished in linguistic analysis from its variations in actual speech (*dhvani*). The anticipation here of the langue-parole distinction made in the twentieth century by Ferdinand de Saussure is too obvious to require elaboration.

In Bhartrhari, we find a much more detailed working-out of the *sphoṭa*-doctrine, studying its application on the different levels of linguistic structure. Among other types he speaks of the vākya-sphoṭa, or sentence-*sphoṭa*, in which we see an inkling of the 'sentential meaning' spoken of by modern philosophers, with whom

linguists do not yet seem to have caught up in this respect, and of the padasphoṭa, or word-sphoṭa, involving a semantic facet or artha, and a phonetic facet or dhvani. Here we find no less than the Saussurian 'linguistic sign', complete with signifié and signifiant. Equally if not more interesting is his varnasphoṭa, varṇa ('color') being a term found already in Pāṇini and meaning something very like our 'phoneme'. But what is a 'phoneme-sphoṭa', if a phoneme is already an abstract unit? The discussion makes it clear that Bhartrhari has in mind the morphophoneme or morphophonemic feature, only recently recognized in American linguistics as necessary apart from phonetic distinctive features. A system of categorial morphophonemic features for a language must be rich enough to characterize as distinct all of the allo-morphs of the morphemes of a language, and Bartrhari uses precisely such examples in speaking of the varnasphoṭa: we must postulate it to account for such alternations of the root kṛ as kār-, kar-, kur- and the reduplicated cakar-.⁸

This should be enough to suggest the richness of the Hindu tradition. It may be worth adding, however, the better-known fact that their phonetic theory was complex enough to account for all of the phonemes of Sanskrit on an articulatory basis, and in addition, to account for vowels and consonants within the same system, a principle independently rediscovered two millennia later by Roman Jakobson in his distinctive feature system.

Unlike the Hindus in at least some respects, the Greek grammarians and their Roman successors seem to fare badly all around. They are particularly accused of the confusion of sounds and letters, which I have not found to have a basis in fact, but it is also generally implied that their principal contribution to the study of language was speculation, and idle speculation at that. Let us look at a few relevant facts from this area, therefore.⁹

We find a consistent structuralist viewpoint already in Plato, when he has Socrates, speaking of phonemes (not letters, as we shall see in a moment) say that 'none of us could learn any one of them and not learn them all'.¹⁰ And also in Plato we find the term στοιχεῖον, which, though it is usually translated as 'letter', is in fact used by both him and Aristotle to mean the indivisible elements into which the syllable (for Plato, the smallest utterable sound) is analyzed. The term is borrowed into Greek physical theory to mean 'atom', and translated into Latin as elementum, and used to refer to a sound-unit, much like our phoneme.¹¹ Later, in Latin grammarians, it is true that the term littera refers to both sound and letter, but by this time there is a fully developed

'doctrine of letters', distinguishing figura (graphic shape), potestas (sound-unit) and nomen (name).¹² So it does not appear to be true in general that the Greeks and Romans confused sounds and letters.

By the time of the Stoic and Alexandrian grammarians (third-first century B.C.) a grammar of Greek had developed which distinguished the principal categories, and a phonetic theory characterizing Greek phonemes in auditory terms. The stops, for example were divided into $\psi\lambda\delta$ 'bare' ($\chi\pi\tau$), $\mu\varepsilon\sigma\delta$ 'intermediate' ($\gamma\beta\delta$), and $\delta\alpha\sigma\epsilon\alpha$ 'thick' ($\chi\varphi\theta$).¹³

As traced in the detailed histories, these Greek theoretical developments continued to be elaborated, and applied to the description of Latin as well. We find among them the fully-fledged Saussurian doctrine of the linguistic sign.¹⁴ In short, Greek and Roman speculation about language was not entirely idle.

In the third to tenth centuries we see a period bringing an important and previously unparalleled wave of activity in the extension of descriptive theory and practice, whose very existence is scarcely acknowledged in the standard histories. And yet this era provided the basis of reference for the familiar later age of description beginning in the late fourteenth century, which broadened detailed knowledge to the vernacular languages of Europe and those of the Spanish New World.

In this earlier period there was a new concern with education and proselytization, from the Mediterranean world (now expanding culturally, with deeper effects than in the preceding imperialist age) all the way to India, China, and Japan, a concern which produced translations of Christian, Muslim, and Buddhist scriptures.¹⁵ Later it led to a study of the descriptive facts of several languages, among them important works on Arabic, Hebrew, Chinese, and Japanese, not to speak of the Latin grammars of Donatus (mid-fourth century A.D.) and Priscian (fl. 512), which remained standard for a thousand years.

More than in any other area discussed, I have had difficulty here in finding useful and readily available secondary sources on the grammars of this period.¹⁶ It is clear that here more than elsewhere there is a great need for restudy of primary sources. Where mentioned at all, these grammars tend to be dismissed with the simple remark that they are cast in a Latin mold, or in a Greek mold, as I suppose those of the Orient are cast in a Sanskrit mold.¹⁷ This is scarcely a surprising observation under the circumstances, and surely an insufficient excuse for ignorance.

¹²The medieval scholar saw in classical Latin the logically

normal form of human speech. In more modern times this doctrine led to the writing of general grammars, which were to demonstrate that the structure of various languages, and especially of Latin, embodies universally valid canons of logic.¹⁸ Under this statement is buried all of the work in general linguistic theory from the twelfth to the seventeenth centuries. It takes only a little patient examination of a representative sample of the general grammars of these ages to allow one to say that the aims were a bit more serious than this dismissal suggests, and considerably more interesting to linguists than one would guess from it.

In the twelfth to the fourteenth centuries there flourished a group of general grammarians called the Modistae,¹⁹ perhaps dating from the commentary of Peter Helias on the Latin grammar of Priscian (c. 1142), who are generally recognized among classicists as having supplied a major part of our modern understanding of Latin syntax and parts of speech. This period begins just at the time when Latin is no longer a spoken language even for scholarly purposes, which is surely a major motive for examining how the rules of older grammars can be given precise form.

Let me say a word on the method of general grammar, referring mainly to the later Port-Royal Grammar,²⁰ with which I am more familiar. The general tenor of discussions is often surprisingly modern; typically somebody's rule is quoted, counter-examples cited from usage, and an attempt made at a better formulation. The doctrine of usage set forth in the Port-Royal Grammar is also sensible, contrary to usual belief, and set forth with great clarity: usage determines correct speech, even when contrary to rule; but isolated facts of usage are not properly used to impugn the validity of grammatical rules.²¹ So once again, we see an area of rather direct interest in the history of linguistic theory, in an unjustly criticized trend.

In the work of the seventeenth century philosophers René Descartes and, I am told, Thomas Hobbes, a different direction of interest in language arose, one consonant with the central rationale of the science of language. Descartes and his followers were concerned with demonstrating the uniqueness of man, and it was therefore hardly surprising that they should turn to language, his characteristic possession, to find evidence for his nature.²²

The interest of philosophers in problems of linguistic theory seems to have been especially strong in the seventeenth and eighteenth centuries. G. W. von Leibnitz is usually mentioned in histories of linguistics for his enthusiasm and support for the collection of data on many languages, as well as his 'protospeech'

hypothesis.²³ He is less often referred to for his suggestions for the construction of an ideal language,²⁴ a 'language in which it would be impossible to lie', which it seems is still a major part of the interest some twentieth century philosophers have left in language.

As formulated today, this problem is confined in philosophical discussions almost entirely to the mechanisms of linguistic reference,²⁵ and is of correspondingly little direct interest to linguists (reference being a much simpler semantic problem than meaning), but the ambitious attempts of Leibnitz and especially his earlier contemporary John Wilkins (1614-72) in this direction are most instructive. Wilkins not only attempted the design of a universal alphabet (which involved original and creative discussion of phonetics) but at the same time worked out an elaborate scheme of semantic dimensions intended for such a universal language.²⁶ This catalog, suggestive even today, suffered the historical fate of gradual attenuation until it ended in such enterprises as the Roget Thesaurus of the nineteenth century.

Philosophical study of language, in this period especially, is then also relevant to our present state. In fact, as I have claimed above, the nineteenth century achievement of Wilhelm von Humboldt may be seen as a fusing of the traditions of general grammar and philosophical grammar, on a solid descriptive base, into his great and original work.²⁷

I should like to close this paper by relating in brief one more example of the neglected riches of the linguistic past. The eighteenth century, among other things, was the heyday of speculative articles about the origin of language, a subject on which modern scholars have heaped much scorn.²⁸

The subject may be futile, and the questions of origin wrongly put. Nevertheless, in the course of discussions on the origin of language, much light is thrown on the nature of language, as in the example I cite here. Rather well-known is the 1772 prize essay of J. G. Herder, to which Edward Sapir devoted his master's thesis,²⁹ considerably less well-known the work of J. P. Süssmilch, which Herder's essay set out to answer.³⁰

Süssmilch argues the divine origin of language; Herder, that it is a human invention. For us the interesting point is this. A main thesis of Süssmilch in arguing the divine origin of language is its perfection, for which he offers as evidence the systematic nature of language, which must be organized in a system of rules prior to any human's learning it, or it could not be learned. Besides, language is universal, and its form is fully developed

wherever it occurs: there are no primitive languages. Much interesting evidence of exotic languages is quoted to support this view, often thought to be the discovery of anthropologists in the twentieth century.

Among the lines of argument adopted by Herder in refutation, we note one here: the possibility of a human origin of language is established by careful study of the manner in which children in fact learn languages. This is not a matter of mechanical reproduction of rules, but itself a creative act, involving, as we would now say, considerable projection from the accidental corpus taken in by the child.³¹

Here, then, two eighteenth century scholars describe clearly, on the one hand, the abstractness and universality of language, on the other its creativity, properties of language we have come to take as basic in the mid-twentieth century.

F O O T N O T E S

- 1 This paper is inspired above all by Roman Jakobson, whose stimulating teaching first revealed to me several facts dealt with here. I owe grateful thanks also to Madison Beeler, who first awakened my interest in the history of linguistics, and, for discussion and references, to Noam Chomsky and John Viertel.
- 2 Some vicissitudes in American linguistics relevant to this complementarity are explored in my paper, 'Descriptive linguistics in America: Triviality vs. irrelevance', Word 20, 197-206 (1964).
- 3 What is really required is a thorough restudy of primary sources. Here, however, I have presented no facts unavailable in secondary histories or articles, though I have checked original language sources whenever available to me.
- 4 My immediate source for this summary is Chapter I of Leonard Bloomfield, Language (New York, 1933), not only because of the influence of Bloomfield's book, but because his picture is painted with a clarity which lends itself well to summary. One can, however, find striking agreement in other places on the general view outlined, e.g. in the more fully documented Chapter VIII of Louis H. Gray, Foundations of language (New York, 1939).
- 5 The Sanskrit Devañagarī alphabet has sometimes been referred to as a syllabary, since consonant characters written alone are

read with the vowel a. But the decisive point is that both vowels and consonants are written, and indicated separately, so the system can only be called alphabetic, as against the Japanese kana, for example, where the representatives of consonant-vowel have nothing, in principle, in common with each other.

- 6 Language, 18. Humboldt's book, Über die Kawisprache, (Berlin, 1836-39), has a lengthy introduction entitled Über die Verschiedenheit des Menschlichen Sprachbaues, which is the most important source for his linguistics. It is this introduction to which Bloomfield specifically refers in the phrase cited.
- 7 The main sources in this discussion are W. S. Allen, Phonetics in ancient India (London, 1953); John Brough, 'Theories of general linguistics in the Sanskrit grammarians', Trans. Philol. Soc. 1951. 27-46; Brough, 'Some Indian theories of meaning', Trans. Philol. Soc. 1953. 161-76; K. Kunjunni Raja, 'Sphota: The theory of linguistic symbols', Adyar Lib. Bull. 20. 84-116 (1956); and K. A. Subramania Iyer, 'The doctrine of Sphota', Journal of the Ganganatha Jha Res. Inst. (Allahabad) 5. 121-47 (1947-48). Also basic are many works by Louis Renou and Paul Thieme.
- 8 Brough, 1951. 43.
- 9 Among the secondary sources, I have found particularly useful Sir John Edwin Sandys, A history of classical scholarship, 3 vols. (Cambridge, 1903-08). Also worth mention are R. H. Robins, Ancient and medieval grammatical theory in Europe (London, 1951), and the basic work of H. Steinthal, Geschichte der Sprachwissenschaft bei den Griechen und Römern (second edition Berlin, 1890). Two recent articles of interest are P. Colaclides, 'On the Stoic theory of tenses', Quarterly Prog. Rep. of the MIT Res. Lab. of Electronics, 80. 214-16 (Jan. 15, 1966) and the very important paper of J. Balázs, 'The forerunners of structural prosodic analysis and phonemics', Acta Ling. Hung. 15. 229-86 (1965).
- 10 Philebus, 18 (Jowett translation).
- 11 Balázs (op. cit. in fn. 9).
- 12 Given e.g. in the Ars Grammatica of Aelius Donatus (mid-fourth century A.D.), Keil, 4. 368.
- 13 Balázs, 243. Though I cannot supply the link, it seems highly probable that we have here the source of odd Latin terms tenues applied to plain stops and mediae for voiced stops.
- 14 The Stoic doctrine of signs is outlined in his De magistro by

St. Augustine (354-430), who uses the Latin terms signans and signatum, once thought to be modern, as translations of the Greek σημαῖνον and σημαίνομενον.

- 15 In the West, for example, we find a deep interest in the problems of translation in the works of St. Augustine, who was an African and native speaker of a Semitic language (Phoenician).
- 16 For work done by Graeco-Roman scholars, the main references of fn. 9 provide some assistance. There are also many useful references and much information about the study of language in connection with Christian evangelism in William L. Wonderly and Eugene A. Nida, 'Linguistics and Christian missions', Anthropological linguistics, 5.1. 104-44 (1963), although the authors' obiter dicta must continually be taken with caution (for example, one notes the discussion of Roger Bacon (c. 1214-92) on pp. 112-13, where the Greek and Roman doctrine of letters is found almost verbatim, with the comment 'In this distinction between sounds and their graphic representation Bacon seems to have been considerably in advance of his time.') Here as elsewhere one can also find many useful references in Gray, Chapter VIII (op. cit. in fn. 4).
- 17 One may note in this connection that the traditional order of the Japanese Syllabary is based on that of the Sanskrit alphabet: a-ka-sa-ta-na-ha-ma-ya-ra-wa.
- 18 Bloomfield, Language, 6.
- 19 The name comes from their habit of titling their grammatical commentaries De modis significandi. G. L. Bursill-Hall of Simon Fraser University, British Columbia, is currently completing a study of the Modistae; see also his 'Mediaeval grammatical theories', Canadian journal of linguistics, 9. 39-54 (1962), and his paper in this monograph.
- 20 Grammaire générale et raisonnée (Paris, 1960). There is also a recent English translation of the Port-Royal Logic, which discusses some similar problems: A. Arnauld, The art of thinking (Indianapolis, 1964).
- 21 Original quoted Language, 41.513 (1965).
- 22 The work of Descartes and his successors is discussed in the forthcoming monograph of N. Chomsky, Cartesian Linguistics. The views of Hobbes are discussed by J. Viertel in the present monograph.
- 23 E.g. Gray, op. cit. 433.
- 24 De arte combinatoria (1666) and other works.

- 25 W. V. O. Quine, Word and object (Cambridge, 1960).
- 26 Essay towards a real character and a philosophical language (London, 1668).
- 27 See the paper in this monograph by H. Mueller, and the forthcoming thesis of J. Viertel.
- 28 Thus W. S. Allen, Trans. Philol. Soc. 1948. 37: 'The theory of divine origin...calls for no intellectual speculation. It is really surprising, then, how "much energy and ink were... wasted"' (Gray, op. cit. 434) on such questions by the best minds of the century.
- 29 Herder's essay was entitled, Abhandlung über den Ursprung der Sprache; the published version of Sapir's work is 'Herder's Ursprung der Sprache', Modern philology 5. 109-46 (1907-08).
- 30 Versuch eines Beweises dass die erste Sprache ihre Ursprung nicht vom Menschen, sondern allein vom Schöpfer erhalten habe (Berlin, 1766).
- 31 See the much fuller description of the Süssmilch-Herder debate by J. Viertel in the present monograph.

ON RE-READING VON HUMBOLDT

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When several months ago I was asked to submit a proposal for a topic at this Round Table Meeting, I suggested rather vaguely something like 'On Re-reading Wilhelm von Humboldt' without knowing or even remotely anticipating the possibility that there would be more than one paper on Humboldt at the same meeting. The vagueness of the proposed title was due to the fact that, at that time, I was not occupied with any specific question or problem area referring to this particular period in the history of linguistics. I rather reacted to a number of circumstances, some coincidental, some growing out of regular academic teaching.

It has been apparent for anyone who keeps up with linguistic work in Germany, that in recent years there has been something like a Humboldt renaissance, evidenced by a continuing discussion of the ergon-energeia statement in the professional literature and by the remarkable trend towards an energetic concept of language in what has been termed 'the struggling towards a new German grammar' (das Ringen um eine neue deutsche Grammatik). There we can witness the efforts of a group of contemporary linguists who have occasionally been labelled the Neo-Humboldtians. Names like Weisgerber, Porzig, Trier, Brinkmann, Glinz, Hartmann and others come to mind.

Until recently, American linguists took little notice of this situation, although Waterman in his brief historical account of the background of modern linguistics gave an adequate evaluation of Humboldt's inspiring role, especially with reference to

Saussure. An indication of growing awareness among American linguists of the relevance of Humboldt's theory of language for contemporary linguistics appeared in Chomsky's Current Issues in Linguistic Theory where he stresses that 'the notion of "form" as "generative process" underlies Humboldt's entire account of the nature of language and of the use and acquisition of language, and constitutes perhaps his most original and fruitful contribution to linguistic theory'. (17). It is mainly the generative aspect in which Chomsky is interested. In that regard his evaluation of Humboldt's ideas to their relevancy for present-day linguistics allows him to say that 'It is just this point of view (scil. Humboldt's) concerning the essential nature of language that underlies and motivates recent work in generative grammar'. (19).

It was in Chomsky's book that I came across another piece of evidence for the growing interest in America for Humboldt's linguistic theory. There is a reference to a forthcoming book by Professor Viertel on The linguistic theories of Humboldt. It was a pleasant surprise to see Prof. Viertel's name on this panel, and I presume that he will have some interesting things to say where our own remarks must of necessity remain inconclusive.

While during his lifetime von Humboldt maintained a lively intellectual exchange with the great men of his time, above all Goethe and Schiller, it has been said that afterwards his ideas on language were lost and forgotten in the nineteenth century development of positivism in linguistics. It is true that Humboldt was not the founder of a school and professional linguistics did not grow into a systematic expansion of his theories until the twentieth century, however the notion that Humboldt was forgotten after his death in 1835 must be taken with reservation. There is Heymann Steinthal (1823-99) who edited Humboldt's linguistic works and over a period of forty years dedicated his efforts to the interpretation of Humboldt's theories. There is Hermann Paul (1846-1921) whose fundamental view of language is that of a process, and who expressly refers to Humboldt as the originator of this viewpoint. To what extent Saussure was familiar with Humboldt's writings is a matter of conjecture. Undeniably, a close relationship in their thinking existed.

Looking back towards Humboldt's own contemporaries, one notices that the most sensational achievements of 'atomistic' comparative linguistics were published during Humboldt's life-time. In 1833, for example, Franz Bopp's monumental Comparative Grammar of Sanskrit, Zend, Greek, Latin, Lithuanian, Gothic and German began to appear. With its focus on morphology

it was one of the highlights of the era of formal linguistics, and one would assume that a deep gulf separated the sophisticated grandseigneur who dealt with linguistics as a lifetime hobby from the regular and highly reputed professor who set the standards in his day for what was academically in vogue. And yet, Bopp was the older man's protégé, it was through Humboldt that the young and brilliant scholar had become a professor of oriental literature and general linguistics at the University of Berlin, and their mutual interest in each other's thoughts becomes apparent when we read Alexander von Humboldt's preface to his brother's postumously published main linguistic work "Über die Verschiedenheit des menschlichen Sprachbaus und ihren Einfluss auf die geistige Entwicklung des Menschengeschlechts" (On the Differences in Human Linguistic Structure and their Influence on the Spiritual Development of the Human Race). There he says in 1836: 'In everything that concerns the philosophy of language or the organism of Sanskrit in particular, my brother has been, until his death, in constant and intimate consultation with a man who was associated with him through a long and proven friendship and mutual respect and who by his sagacity and untiring activity is exercising an ever growing influence on the way which the comparative study of language is going. Professor Bopp received from the deceased every completed page of the manuscript of this book with the request for severe criticism. The intellectually stimulating influence of such a friend deserves a public expression of thanks at this place.'

This passage has somehow been overlooked. It speaks against the opinion that von Humboldt's voice was not heard during the heyday of nineteenth century positivism. Still, it remains a fact that he was an outsider and also that his writings are not easy reading. Above all, Humboldt's concern was not the professional study of language per se, but his interest lay in the anthropological and metaphysical implications of understanding how man becomes conscious of himself and the world around him. This led him to language as the proper study of mankind and thus his understanding of language goes far beyond the pragmatic approach to language as a means of communication.

Some of his ideas have proved to be revolutionary. One is the notion of form as a generative process which has already been mentioned and which is closely connected with his famous statement about language as energeia. It is rewarding to investigate how Saussure's langage-langue-parole compares with it. Another Humboldtian idea is the theory of a specific world-view being reflected in each language. It would be equally rewarding

to follow his idea through the various nuances that it takes in the writings of Saussure, Boas, Sapir, Whorf, up to the linguistic field theory of our days. Still another of Humboldt's ideas is that of the inner form of language which has become a widely discussed topic in contemporary European linguistics.

The ergon-energeia statement, in a condensed formulation, is contained in the following passage from the introduction to the Kawi grammar which, instead of an introduction, became a programmatic treatise on language in general:

'Language, properly seen, is something continuously fluid and transitory. Even its preservation in writing is only imperfect, reminiscent of a mummy. Writing needs the underlying idea of the speech performance by a living speaker. Language itself is not a finished product (ergon), but an activity (energeia). Its correct definition, therefore, can only be genetic. It is the constantly repeated effort of the intellect to enable the articulated sound to express thought. Strictly and directly speaking, this is the definition of each individual speech act. But truly and essentially, one can consider language only as the totality of these speech acts. Because in the scattered chaos of words and rules which we are used to call a language, there exists only the individual phenomenon produced by the speech act, and this is never complete but needs a new effort to recognize through it the nature of actual speaking and to give a true picture of the living language. The highest and most delicate is not apparent in those isolated elements and can only be observed and felt in continuous discourse (in der verbundenen Rede), which is so much more proof that language is essentially to be found in the act of its real production. In all investigations which are supposed to penetrate into the real nature of language, only continuous discourse must be thought of as real and primary. The fragmentation into words and rules results only in a dead product of scientific analysis' (Sprachbau, 8, LVII).

And a little later: 'The constancy and uniformity which lies in this activity of the spirit to raise the articulated sound to the expression of thought, taken as completely as possible in its connectedness, and systematically demonstrated, is the form of the language.' (Sprachbau, 8, LVII f.).

The interpretation of the ergon-energeia statement must be done in conjunction with a comprehensive look at Humboldt's philosophical background. One has to ask what does he mean by spirit, energeia, form. His educational experiences are revealing. In his early years he was privately tutored by the philosopher

Johann Jacob Engel who introduced him to the ancient Greeks and to the ideas of Leibniz and Wolff. Later, at the university, Humboldt studied Kant and aesthetics. We know that he was familiar with Plato and Aristotle, that he was in close contact with the philosophers of his time, and especially that he was a personal friend of Schiller and Goethe with both of whom he maintained a fruitful correspondence. Geist in the intellectual atmosphere of his time is a supreme power in the sense of a metaphysical life principle. This power is only to be conceived as an activity. Tangible evidence of this power is always subject to certain conditions of time, space, and causality. Tangible evidence of Geist in this world are its effects, its actualization, such as language. Geist is a transcendental reality which must be believed. The meaning of man's life must be the elevation and expansion of the inner being, a truly humanistic idea. For Humboldt, language is the organ of the inner being. Thus, language in the final analysis receives a metaphysical rank.

Language is an activity (Energeia). This is not identical with the individual speech act, but 'language can only be seen as the totality of these speech acts'. Energeia then is the common denominator of all speech acts. That is, language is the human faculty of enabling the articulated sound to express thought and, moreover, the actualization of this faculty. It is, in a wide sense, man's linguistic faculty (*Sprachkraft, Sprachvermögen*) which is the focal point of Humboldt's theory. Energeia, therefore, is not the Saussurean parole, nor is it langage. In Saussure's definition, parole is the executive side of langage, the individual act, both wilful and intellectual. Langage is the comprehensive term which includes both the individual and the social side. 'Taken as a whole, langage is many-sided and heterogeneous; straddling several areas simultaneously - physical, physiological, and psychological - it belongs both to the individual and to society; we cannot put it into any category of human facts, for we cannot discover its unity' (Saussure, Course in General Linguistics, New York, 1959, 9). Saussure recognizes the existence of a linguistic faculty in man beyond the functioning of the various organs: '(It is) the ability to evoke by an instrument, regardless of what it is, the signs of a regular system of speech' (loc. cit., 11). It seems that Saussure was less interested in getting at the bottom of this linguistic faculty proper than was von Humboldt who kept prying into the secrets of the human mind.

Humboldt says that language is not an ergon but an energeia. But there can be no doubt that there is an objective social product,

something which Saussure calls langue, before and after the individual processes of actualization. The system of significant possibilities which is at the disposal of the speaker is a reality, also for Humboldt, though not a tangible one.

We find that Humboldt sees this in spite of his rigid ergon-energeia statement. He admits the existence of langue when he says that in a language a system of rules and a storage of words develops which in the course of thousands of years grows to be an independent power. 'Since in its written form it preserves the sleeping thought ready to be awakened by the mind, it develops a peculiar existence which indeed can become effective only through the individual mental act, and yet in its totality is independent of it.' (Sprachbau, 9, LXXVIII).

It would be imprecise to equate ergon with the Saussurean concept of langue. Saussure defines langue as a principle of clarification, 'a collection of necessary conventions that have been adopted by a social body to permit individuals to exercise (their faculty of speech)' (Course, 11). That means that the emphasis is on the significant elements deposited in the system. Ergon, on the other hand, in Humboldt's view means the 'Sinnzusammenhang', the fulfilled attribution of significations to the various elements resulting in a defined reality.

When Humboldt speaks of the form of a language, he means form as generative process, as Chomsky puts it. This needs some clarification. Chapter 8 of the introduction to the Kawi grammar bears the title 'Form der Sprachen' and this is where we find some relevant passages.

'Language presents us with an infinitude of details by way of words, rules, analogies, and exceptions of all kinds, and we are at a loss as to how to bring this mass - which appears to us as a confusing chaos although it has already been ordered and classified a good deal - into a proper comparison with our unified image of the human spiritual power. ... This demands a search for the common sources of the various characteristics, the drawing together of the dispersed traits into the image of an organic whole. ... In order to compare fruitfully various languages in reference to their characteristic structure (Bau), one must therefore explore the form of each most painstakingly' (Sprachbau, 8, LVf.). What then follows is the energeia-passage which incidentally is the only place where Humboldt used the term energeia, and then only in parentheses. After that he returns to the definition of the term form as those elements in the activity of the spirit which are constant and uniform.

'In this definition of form it appears as a scientific abstraction. But it would be entirely incorrect to consider it solely as such an existenceless figment of thought. In reality it is the quite individualized urge by means of which a nation creates validity in language for its thoughts and its feelings' (loc. cit., 8, LIX).

Subsequently, we witness Humboldt return again and again to this focal point in his theory of language, the energetic nature of form. 'The characteristic form of languages depends on each single one of its smallest elements, each is somehow determined by it, however unexplainable in detail. On the other hand, it is hardly possible to find points of which, taken individually, it could be asserted that the form of the language is specifically and decisively attached to them' (loc. cit., 8, LIX).

He then stresses the point that by form in language he does not merely mean its so-called grammatical form, that no detail is included in the concept of form as a mere isolated fact, but only insofar as a method of linguistic structure can be recognized in it. That is to say, that form is the concept of the individual linguistic elements in spiritual unity, whereas the elements are, in opposition to it, to be considered as its matter. ('[Form] ist in ihrer Natur selbst eine Auffassung der einzelnen, im Gegensatze zu ihr als Stoff zu betrachtenden, Sprachelemente in geistiger Einheit') (loc. cit., 8, LXII).

This concept of form does not preclude the consideration of word formation, grammatical forms, and sound system. But it takes these phenomena as actualizations of an underlying principle of form the study of which is for Humboldt identical with the proper study of language. It should not be overlooked that the dynamic concept of form is prevalent in the aesthetic and philosophical thinking of the eighteenth century in which Humboldt grew up.

Besides the ingenious statement of the energeia principle we have to credit Humboldt with the authorship of the eminently fruitful combination of language and society, the complex of ideas which has become familiar to modern linguists under the label of the Sapir-Whorf hypothesis. By 'authorship' is not meant an absolute priority in the original expression of what must have been a very old insight into the nature of language. But the systematic exploration of this insight and the incorporation into a theory of language belongs to Humboldt.

It is interesting to discover references to the 'language and culture' complex in earlier sources. Herder, in 1768 (*Über die neuere deutsche Literatur*), formulated the problem clearly. Hamann had mentioned the question in 1760 (*Versuch über eine akademische*

Frage), Lord Monboddo's book on the origin and progress of language (1773) contained details relevant to the problem. But the idea was much older. A passage in Francis Bacon (1605, 'Of the Dignity and Advancement of Learning') mentions a remark by Cicero (*De Oratore*, II, 4) that the Greeks had no word to express the Latin *ineptus* because 'that vice was so familiar among the Greeks that they did not perceive it in themselves'. At which point Bacon elaborates further on the possibilities for observations 'concerning the dispositions and manners of peoples and nations, drawn from their languages'.

Humboldt arrives at his world-view theory as a logical step from his concept of *form* which in regard to individual languages he refers to as their *inner form*. 'The differences between languages', he says, 'are not those of sounds and signs but those of differing world views. Herein is contained the reason for and the final aim of all linguistic study' (Über das vergleichende Sprachstudium in Beziehung auf die verschiedenen Epochen der Sprachentwicklung, 1820; W. v. Humboldts Gesammelte Schriften, Berlin, 1903, vol. IV, 27). Or elsewhere: 'It is no empty play with words if we say that language has its spontaneous origin in itself, in divine freedom, but that languages are bound to and dependent on the national groups which speak them' (Sprachbau, 2, XXI). And again: 'One might just as well consider the intellectual characteristics of a nation the product of its language, as the other way round' (Sprachbau, 6, XLVIII).

As early as 1800 Humboldt begins to formulate the world-view theory which had gradually taken shape in his mind. In a letter to Schiller we find passages such as this: 'Language is therefore, if not generally speaking, at least sensuously, the means through which man forms himself as well as the world'. ('Die Sprache ist daher, wenn nicht überhaupt, doch wenigstens sinnlich das Mittel, durch welches der Mensch zugleich sich selbst und die Welt bildet'). That means that the world is subjectively language-created.

In 1812 he writes an 'Essay on the Languages of the New World' (in French) and there the same thought is more definitely expressed: 'The world in which we live is exactly that into which we are transplanted by the language which we speak'. (Le monde dans lequel nous vivons est donc exactement celui dans lequel nous transplante l'idiome que nous parlons).

The basic recognition that for every complex of reality there is more than one possibility of understanding and classification is unambiguously stated in such passages, and it becomes clear that

Humboldt's awareness of a close correlation between language and society was not a fleeting thought but a lifelong concern. The references to the language and society problem are scattered through his books and letters, as we have seen. One of the most striking passages is from his last work, the introduction to the Kawi grammar: 'The spiritual characteristics and the linguistic structure of a people stand in a relationship of such indissoluble fusion that, given one, we should be able to derive the other from it entirely'. ('Die Geisteseigenthümlichkeit und die Sprachgestaltung eines Volkes stehen in solcher Innigkeit der Verschmelzung in einander, dass, wenn die eine gegeben wäre, die andere müchte vollständig aus ihr abgeleitet werden können'. (Sprachbau, 7, LIII). This sounds so modern that one would not be surprised if one had found it as a quotation from Saussure, Boas, or more likely even, from one of Weisgerber's recent studies.

Closely linked up with the world view theory is the concept of the inner form, the much discussed cliché that seems to be often misunderstood. Humboldt, as far as I can see, uses the term only in passing, mainly in chapters 11 and 12 of the introduction to the Kawi grammar.

The relationship between the concept of inner form and that of world view is again genetic, like that of ergon and energeia. The world view is the product, the inner form is the dynamic principle. Form is here to eidos (τό εἶδος), the idea, das Urbild, not he morphē (ἡ μορφή), the morph. Who would not be reminded of Goethe's 'Urform der Pflanze', the underlying ideal model of all plants? Quite similarly Humboldt sees the inner form of each language as its principle of organization, the basic plan of its organism. It was Weisgerber in our days who has revived the term and has attempted to demonstrate in detail how the inner form is at work in one particular language, a task that Humboldt did not undertake systematically.

Finally, we shall take a look at what Humboldt has to say about the learning of a language, especially a foreign language. Since language is an activity which is grounded in the linguistic faculty of all men, Humboldt can maintain that it is just as correct to say that the whole human race possesses but one language as that every man possesses an individual language. Accordingly, the process of learning a language appears in a new light. '(Language) ...cannot be considered as something externally separated from spiritual character and can therefore, properly speaking, not be taught (though at first glance it may seem otherwise), but only awakened in the pysche (im Gemüthe wecken); one can only give it

the clue along which it will develop of itself' (Sprachbau, 6, L). And furthermore: 'Language can not be seen as a collection of material lying there surveyable in its totality or gradually communicable, but must be considered forever in process, where the laws of generation are constant but the extent and in a sense even the kind of product remain wholly indefinite. When children learn to speak, it is not a receiving of words, their retention in memory and subsequent imitative babbling, but a growth of the child's linguistic capacity through age and practice' (loc. cit., 9, LXXI).

How can the acquisition of foreign languages affect this complicated situation in the human mind? This question is particularly interesting in the light of Humboldt's theory of the correlation between language and world view. His opinion is characteristic of the man who himself had learned over a dozen foreign languages. Adequately enough, we find that he discusses foreign languages in connection with his world view theory.

'Each language contains a characteristic world view. As the individual sound mediates between object and person, so the whole language mediates between human beings and the internal and external nature that affects them... Man lives with objects mainly, in fact exclusively, ...as language presents them to him. Through the same act by virtue of which he spins language out of himself, he spins himself into language, and each language draws a circle around the people to which it belongs, a circle from which one can escape only insofar as one steps into the circle of a different one. The learning of a foreign language should therefore be the gaining of a new standpoint in one's world view, and it is that in fact to a degree, because each language contains the whole conceptual web and the mental images of a part of mankind. If this effect is not purely and completely felt, the reason is only that one always projects, to a higher or lesser degree, one's own world-view, in fact one's own view of language, onto a foreign language' (Sprachbau, 9, LXXV).

That is one way in which Humboldt sees a possibility of overcoming the tyranny of language. He is acutely aware of the prison walls which language erects around the human mind, but he also sees the power which man has over language. Even in his own native language man is free, inasmuch as language is a process and the development goes in the direction of greater perfection in the process of making the articulated sound capable of expressing thought. 'In the manner in which language modifies itself in each individual...a power of man over language manifests itself. The

power of language can be seen as a physiological force (if one wants to apply the term to spiritual force); the power of man over language is purely dynamic. The influence over man lies in the regularity of language and its form, in man's reaction there is a principle of freedom' (*loc. cit.*, 9, LXXXI).

In mentioning the belief in an ever increasing perfection in the development of mankind, we have touched upon an idea which occupied Humboldt deeply and which has a bearing on his linguistic thinking. We may recall that the early nineteenth century linguists were preoccupied with the idea of the gradual descent of the Indo-European languages from the heights of perfection which the proto-language had represented and which, to a considerable extent, Sanskrit and classical Greek still retained. Grimm and Schleicher voiced regret over the decline of the modern languages away from the ideal. Humboldt is too deeply convinced of a steady upward development of mankind as to let his admiration for the classical literatures and languages interfere with his humanistic idealism. Language may shed forms and thereby become freer in the pursuit of its eternal goal, namely to strive for an ever more perfect grasp of the world and for a wider horizon of human understanding.

CONCEPTS OF LANGUAGE UNDERLYING THE 18th CENTURY CONTROVERSY ABOUT THE ORIGIN OF LANGUAGE

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This paper¹ is to give some of the results of research into the sources of Wilhelm von Humboldt's theory of language; it seeks thus to offer clearer insight into his thought by relating it to its historical context, and specifically to point out those concepts of language developing out of the 18th century controversy about the origin of language which formed the historical basis or starting point of Humboldt's linguistic work.

Yet at the same time, the 18th century theories of language origin are not without interest in themselves. The discussion of origins in general represents the attempt to understand phenomena by giving a kind of genetic explanation, by explaining how these phenomena originally came to be. Explanatory constructions of this type go back beyond the earliest beginnings of our scientific tradition. The Cosmogonies of the Ionian philosophers of the 6th century, B.C. are well-known examples. They represent the attempt to investigate and understand the causation of phenomena presently observed, that is, to understand causation operating non-historically, not operating as development through time; and yet to investigate these in terms of historical progression from an earliest or original state, which is regarded as a cause, through successive phases of development till the observed phenomena are fully established; the underlying assumption being, that the histo-

rical or genetic principle of causation will also prove to be the principle of causation at work at present. If, for example, in the beginning all was 'air' (or water or fire), then 'air' is the basic component, the basic element of the universe, of which all the others are made, the universe is the original 'air' upon which the processes of 'generation' have worked to modify the original state of the basic element, and these historical processes explain the present relation between the basic element and the phenomena.

Similarly, underlying theories of the origin of language was the feeling that if an adequate and satisfactory explanation for the origin of language can be found, then this will offer fundamental insight into the nature of language as it is at present. If we can understand how language arose among men, then we will understand the basic relationship between language and human nature or the human mind.

But such genetic explanations usually involve reasoning in the opposite direction too: directions and analyses of present phenomena are adduced to arrive at, and justify the genetic explanations. This is of course especially true when the genesis lies outside the realm of possible observation, and the origin must thus, of necessity, be a purely theoretical construct. In this way the observation of present phenomena, such as, for example, 'condensation and rarefaction', freezing and melting, the building up of soil at the mouth of rivers, and so forth, were used by the Ionians to arrive at, and to support their naturalistic accounts of the genesis of the cosmos. And the phenomena of language as presently known and observed played a similar role in the discussion of language origin. Thus observation about language, what we today would call 'synchronic' investigations and analyses - as well as comparative observations - are presented as evidence for the proposed theory of origin, which in turn is to shed light on language as presently known.

One may point to other fields and less remote periods of scientific investigation for analogous illustrations of the role of genetic explanations and their interaction with 'non-historical' explanations: thus, hypotheses about the origin of life in present-day biology, and in contemporary Physics the attempt to construct cosmologies.

Theories of origin involving unobservable geneeses may then be considered as not uninteresting constructs of rational speculation, in which the analyses of observed phenomena are tested by seeing how well they lend themselves to such construction, and through which, at the same time, the insight offered by the 'non-historical'

analyses may be extended and deepened.

To be sure, there is today a considerable difference between our conception of historical linguistics and such speculative genetic theories of language origin. We feel quite keenly that we have not enough knowledge at present for the constructs of such rational speculation to prove profitable. Still I will seek to show here, that the 18th century speculation is not entirely uninteresting for modern theory of language, nor entirely unintelligible with respect to problems that are in the foreground of linguistic investigation today. Then even if we consider that attempts to construct a theory of language origin are not very profitable at the present state of our linguistic knowledge - and even if some of us may suspect that a really satisfactory theory of this sort is in its very nature unattainable - still, at the very least the 18th century controversy proves of considerable interest for the basic conceptions of language involved in the construction of their theories.

The attempt to understand language in terms of its origins from the beginning is most intimately linked with, indeed is a central component of, the attempt to understand and define man - the attempt to understand man in genetic terms too, insofar as the investigation of human nature and human institutions was founded on the conception of 'man in a state of nature': man at the very outset of his history, bare of all the institutional and cultural accretions of his later development, and thus distinguished, from the animals and all other organisms, by nothing but his essential nature as man. Again this attempt can be viewed as a sort of rational speculation to explicate the nature of man.

That language must play a central role in any such investigation soon became clear. For possession of language is one of the defining characteristics, if not the defining characteristic of the species Man. The classical definition: 'Man is a rational animal' presents the problem of in turn defining reason - at least as a predicate of man - and the controversy surrounding this latter problem can be viewed as the central theme of Philosophy from Plato down to the present day.

The possession of language, on the other hand, presented a criterion that seemed at least somewhat more evident and well-defined. Perhaps one can say, language presents what is more in the nature of a first order phenomenon, while reason is of the second order. But I need not point out to this audience that the concept 'language' is not entirely removed from controversy either. And the issue of whether the definition of language must

not include the so-called 'animal languages' too, and just what distinguishes human languages from these latter, soon became a part of the controversy.

But not only did language seem to offer a more accessible criterion for man, in the definition of reason itself language also played an important role. The close interrelation of language and thought was already recognized in Plato's time: 'Thought is the silent, inner conversation of the soul with itself' (*Sophist*, 263E) and 'The combination of names is the essence of reasoning' (*Theaetetus*, 202B).

Thus the possession of language and the possession of reason are from the beginning almost inseparable as the defining characteristics of man, no matter how different the viewpoint as to the relation between the two may be - between the realists on the one hand and the different varieties of nominalists on the other.

It was the latter view, Nominalism in a new and radical form, that moved language into the center of modern philosophical discussion, when Hobbes proposed, in his *Objections to Descartes' Meditations*: 'Que dirons-nous maintenant si peut-être le raisonnement n'est rien autre chose qu'un assemblage et un enchaînement de noms par le mot est? D'où il s'ensuivroit que par raison nous ne concluons rien de tout touchant la nature de choses, mais seulement touchant leurs appellations, c'est-à-dire que par elle nous voyons simplement si nous assemblons bien ou mal les noms des choses, selon les conventions que nous avons faites à notre fantaisie touchant leurs significations.' (4th Objection). Reason may be nothing but the concatenation of names by means of the word is, according to conventions about their signification which we ourselves have made. This proposal Hobbes spelled out in 'The Elements of Law' and later in 'Leviathan' and 'De Corpore'.

What distinguishes man from the animals is the ability to reason abstractly, deductively, with mathematical rigor. Animals too are capable of reasoning from experience - but this is 'prudence' and is merely conjectural and has not the characteristics of certainty and precision that distinguish what Hobbes calls 'philosophical reasoning' or 'true ratiocination'.

This distinctively human ability flows from the use of language - and language is a human 'invention'². And this is crucial for Hobbes' conception of man: as an artifact language is not an essential part of man's original nature, and thus neither is human reason; therefore man is an animal, an animal mechanism, explicable in all his functions, faculties and abilities by the laws of physics.³

Thus Hobbes introduces into modern thought the constitutive function of language: the function of language is not merely to express and communicate thought, language plays the decisive role in making reasoning possible. Words are not just 'signs', but also 'marks', that enable man to distinguish and recollect ideas and aspects of ideas, and thus to perform the essentially more elaborate and accurate operations upon these ideas that Hobbes calls 'ratiocination' - reasoning.

But even beyond that: all abstraction is possible only by virtue of language - by virtue of names. The older scholastic Nominalism had denied the existence of universals in nature, in the things themselves. Hobbes' new radical Nominalism sought in addition to deny their 'psychological reality': he established the principle, so important in the later development of empiricism, that only concrete particulars exist in our mental images or 'phantasms'. The universals were merely the names which designated classes of these particular phantasms, by marking and designating the qualities which these latter had in common. Thus for Hobbes names play the same role - they are the bearers of universals - as the particular ideas, become representative of classes of such ideas, do for Berkeley.⁴

We will not pursue the elaboration and development of these principles in the history of Empiricism. But we can see now how the stage is set for the origin of language controversy: if human language is constitutive of reason, and is conventional and of human origin, a human artifact, then man is not essentially distinct from the animals, and the special status of Mind as essentially distinct is called into question.⁵

The position against which Herder primarily directed his essay on the Origin of Language was that of the orthodox Wolffian Johann Peter Suessmilch in his 'Versuch eines Beweises, dass die erste Sprache ihren Ursprung nicht vom Menschen, sondern allein vom Schoepfer erhalten habe', read before the Prussian Academy in 1756 and finally published in 1766. It is the constitutive function of language which Suessmilch brings forward as the ground for his proof of the divine origin of language. The basic argument runs as follows:

- i) The perfection of language shows that it must be the product of a being or beings endowed with reason;
- ii) however, as the possession of reason is dependent on the possession of language: without language men would have been incapable of reason, and
- iii) thus incapable of inventing language; therefore man must

have received language from his creator.⁶

In the first main section (Sections 4-15) Suessmilch points out the excellence of all languages. Mainly he talks about 'known' languages: German, Latin, Greek and their 'daughters' and the Semitic languages. But he is also familiar with missionaries' reports of the languages of primitive peoples and draws many examples from these. The excellence of languages is displayed in their aptness for communication and thought and in their efficiency: a small number of sounds - 'letters', defined as single parts (segments) of articulation - can be combined to form a great number of words; the number of words is not so great as to exceed the limitations of human memory, and yet great enough not to introduce undue ambiguities; furthermore the 'letters' are combined in such a way that children can learn them easily; this is true even of languages whose sounds seem very difficult to us: the children of the Dutch settlers could easily learn the language of the Hottentots, while their parents could not.

Our limited memory is further aided by the fact that similar things are designated by similar words. Related to this is the order and regularity displayed by all languages; every language has a grammar: it could not be learned otherwise; all known languages have the same eight parts of speech, and morphologies that in their regularity aid memory and imagination in identifying these parts of speech. Memory is further aided by the fact that all languages have derived and compound words, and basic stems are for the most part monosyllabic and bisyllabic. Finally there are the abstract terms, which are necessary for all reasoning and all science; these illustrate the problem of language creation most clearly: 'He who would make a word into the sign of a general concept, must necessarily first have thought of that concept, and by strenuous attention and reflection noticed and grasped the similarity, the species and genus of the many individual things.' (Section 11) There is no language reported by the missionaries that is so primitive that it is not 'apt' for reasoning and science. Nor do such languages lack abstract words. Even the lofty concepts of Christian theology could be conveyed in the language of 'wretched' Greenlanders, as Suessmilch calls them.⁷

The second premise is treated in detail in the next part of Suessmilch's essay (Sections 16-25): the dependence of reasoning upon language. Without language one cannot attain distinct or general concepts or their ready employment; one cannot combine deductions into chains of reasoning. To achieve clear and distinct concepts, to abstract the characteristics that are necessary for

comparison, to establish differences and similarities, sensual signs are necessary; or else the mind will be overwhelmed by the multiplicity and the constantly changing flux of sensations and images (Section 17-20). Even more difficult would be the abstraction of general and universal concepts: 'the signs must be our guides through the labyrinth of our internal representations (*Vorstellungen*).'

These arguments are drawn principally from Wolff's '*Psychologia Empirica*' and his '*Psychologia Rationalis*'. And through Leibniz the derivation of these notions can be tracked back to Hobbes.⁸ But the epistemological basis is obviously different: universal concepts underlie the words, the universal signs, though these signs are necessary for the formation of the concepts - for raising them to distinctness and clarity. Here we can already discern one of the sources of Humboldtian theory: Humboldt's conception of the interrelation of language and thought can, at least in part, be considered a Post-Kantian elaboration of these Wolffian principles.

In the appendix to his essay, Suessmilch cites approvingly the recital of the difficulties involved in any attempt to account for the origin of language by human invention, which he found in Jean Jacques Rousseau's '*Discourse on the Origin and Foundations of Inequality among Men*'.⁹ This had appeared in 1755, a year before Suessmilch read his essay before the Prussian Academy.

To be sure, Rousseau's conclusion, as stated in the first part of the Discourse, appears to support Suessmilch's view: 'For myself, frightened by the multiplying difficulties, and convinced of the almost demonstrated impossibility that languages could have arisen and been established by purely human means, I leave to whomever would undertake it the discussion of the following difficult problem: Which was most necessary, previously formed society for the institution of languages, or previously invented languages for the establishment of society?' (p. 126) Of course, this is but another version of Suessmilch's paradox, but on a much weaker basis: Rousseau's assumption that in a state of nature men did not live in herds, as many lower animals do.

However, Rousseau's position on human language origins is by no means so unambiguous as Suessmilch seems to think. Rousseau's objections are related to his central criticism of previous descriptions of the 'State of Nature' - principally that of Locke: that these had illegitimately imported elements of later civilization and later institutions into the 'State of Nature'. But admirable as this creative act of Rousseau's powerful historical imagination undoubtedly

was, he did go too far in this respect, and thus created a basic problem for himself: he abstracted away so much that it became very difficult to imagine how man could ever have begun to emerge from a 'State of Nature' such as he describes.¹⁰

Thus also the difficulty with respect to the invention of language, which Suessmilch cited. But Rousseau does try to give at least a partial account of how such a human invention of language could have come about. He rejects Condillac's theory that language was born in the primitive family, for he argues that such a relatively civilized institution as the family cannot be presupposed in the 'State of Nature'. Yet if one can somehow meet the initial difficulty of how the need for language would arise, then language can develop out of the 'cry of Nature' that man shares with the animals, which gradually is shaped into articulated words, representing one word sentences; then gradually the main divisions of the sentence and the main parts of speech are invented.

Here Rousseau follows an essentially empiricist epistemology: all words were originally proper names of individual things; general names were only invented later: 'the more limited the knowledge, the more extensive the dictionary...besides, general ideas can come into the mind only with the aid of words, and the understanding grasps them only through propositions... Every general idea is purely intellectual; if the imagination is in the least involved, the idea immediately becomes particular.' (pp. 123-125) Then, gradually, 'our new grammarians' began to invent the first names of species and genera.

As in Suessmilch, the picture is rationalistic, insofar as all this is conceived in terms of conscious intellectual invention; while on the other hand, its basis is that British empiricist psychology which held such sway in the country of Descartes during the latter part of the 18th century. 'How for example would they have imagined or understood the words matter, mind, substance, mode, figure, movement, since our philosophers, who have used them for such a long time, have so much trouble understanding them.' (pp. 125-126) The irony has a definitely Humean ring.

Yet there still remains an important Cartesian vestige: '...it is not so much understanding which constitutes the distinction of man from the animals as it is his being a free agent. Nature commands every animal, and the beast obeys. Man feels the same impetus, but realizes that he is free to acquiesce or resist; and it is above all in the consciousness of this freedom that the spirituality of his soul is shown. For physics explains in some way the mechanism of the senses and the formation of ideas; but

in the power of willing, or rather of choosing, and in the sentiment of this power are found only purely spiritual acts about which the laws of mechanics explain nothing.' (p. 114) There could hardly be a clearer statement of the basic Cartesian distinction between the two substances - only that here, following the empiricists, ideas have become entirely incorporated in the animal mechanism, and of the 'spiritual substance' only the will remains.

Rousseau specifies a second distinctive characteristic of man, about which there can be no dispute, in his view, and which, we shall see, is to have important consequences in Herder: 'the faculty of self-perfection, a faculty which, with the aid of circumstances, successively develops all the others, and resides among us as much in the species as in the individual. By contrast an animal is at the end of a few months what it will be all its life; and its species is at the end of a thousand years what it was the first year of that thousand.' (pp. 114-115)

The status of this concept is problematic indeed in the first part of Rousseau's Discourse, where (as pointed out above) so much emphasis is placed on the difficulty of conceiving that man should change his original state. And Rousseau's ambivalent attitude toward this progressive self-improvement at once finds expression: 'It would be sad for us to be forced to agree that this distinctive and almost unlimited faculty is the source of all of man's misfortunes; that it is this faculty which, by dint of time, draws him out of his original condition in which he would pass tranquil and innocent days; that it is this faculty which, bringing into flower over the centuries his enlightenment and errors, his vices and his virtues, in the long run makes him tyrant of himself and of nature.' (p. 114-115)

Here again is Rousseau's dilemma: the positive evaluation of man's original condition, that makes it difficult to understand why man should ever change it. Without really resolving this problem, Rousseau goes on, in the Second Part of the Discourse, to describe how, as the human race spread and multiplied, and as men began to join together to overcome the resulting difficulties, the first universal language began to develop, as described above, out of inarticulate 'cries of nature' joined to natural gestures. As the sounds became articulated, the individual languages began to become differentiated - crude, imperfect languages 'approximately like those which the various savage nations still have today.' (p. 145-146) It is interesting to see how different from that of Suessmilch is the characterization of primitive languages which Rousseau

derived from the reports of missionaries and travellers.

With the establishment of sedentary life and therefore more permanent conjugal relations 'the use of speech was established or perfected imperceptibly in the bosom of each family.' (p. 147) Thus Condillac's theory is actually accepted by Rousseau, but in a different role, transferred to a later stage of development.

Geographic divisions and barriers, isolating ethnic communities hastened the progress of language differentiation: 'Great floods or earthquakes surrounded inhabited cantons with water or precipices; revolutions of the globe detached and broke up portions of the continents into islands. One conceives that among men thus brought together, a common idiom must have formed sooner than among those who wandered freely in the forests or on solid ground. Thus it is very possible that after their first attempts at navigation, islanders brought the use of speech to us; and it is at least very probable that societies and languages came to be on islands and were perfected there before they were known on the continent.'¹¹ (p. 148)

Thus it seems quite clear that Rousseau believed in the human origin of language, but also realized clearly the great difficulties that stood in the way of giving a coherent and convincing account of the process whereby this took place.

To be sure his difficulty is increased considerably by his empiricist preconceptions: for if the human mental faculty is not endowed from the very beginning with the capacity for generalization and abstraction, if it does not contain from the outset - phylogenetically as well as ontogenetically - at least 'the seeds of general ideas', then it is indeed very difficult to explain how these can ever be acquired.

Herder had been familiar with Rousseau's ideas since his student days at Koenigsberg in the early 1760's when he heard them discussed by, and studied them under his then revered teacher, Kant. It is simpler to get at the central conceptions of Herder's prize essay on the Origin of Language¹² by examining first the two main criticisms which he raises against Rousseau:

1) That man was never so much like the animals as Rousseau pretends; the essential distinction between man and the animals must have been true of man from the very outset - as it were, by definition, or else he would not have been man.

The main conception which underlies this argument is directly derivable from a group of related concepts that we have already shown in Rousseau himself: - man's freedom; and man's lack of specific instincts, which underlies this freedom; man's capacity

for self-perfection. Herder understands all these as interrelated, and as such, constituting from the very beginning, not only the essential distinction between man and the animals, but the basis from which all human development and progress necessarily follows.

The non-specificity of instincts, that man is not bound to any inbred mechanism of behavior, is not only constitutive of his freedom, but also of that peculiar central mental characteristic of man, which Herder calls '*Besinnung*' and '*Besonnenheit*' - the ability to reflect, to look upon and contemplate that which his senses convey to him coolly and, so to speak, more disinterestedly, more broadly, and not under the compulsive drive toward an immediate and limited end; and thus to recognize and separate, to analyze and compare, and therefore to act upon, aspects of the world around him in a manner of which no animal is capable.

This is the basis of what we may call man's '*creativity*'. And with that is given, from the very beginning, from the very first moment that man exists as man, his capacity for self-perfection; '(he) stands free, can select his sphere and contemplate in himself the nature of his own being (*kann sich in sich bespiegeln*). No longer an infallible machine in the hand of nature, he is the object and aim for the application of his own power (*er wird sich selbst Zweck und Ziel der Bearbeitung*).'¹ (p. 23)

Herder adds, that to conceive of such a capacity without its exercise, is an artificial and false philosophical abstraction: man has the capacity for self-perfection from the very first moment, being man, and from the very first moment exercises it. (pp. 26-27) This criticism of Herder's does point up the basic inconsistency of Rousseau's conception of man in the state of nature; a Cartesian conception of man as endowed with a distinct spiritual faculty, inexplicable on mechanical grounds, is incompatible with the conception of man as an animal mechanism. The fact of '*freedom*', of nonspecificity of behavior, entails from the outset human creativity and human progress.

The same distinction applies equally to language: animals have their language too; it is the nature of all higher animals to give vocal expression to their feelings and thus to communicate them and arouse sympathetic feelings in their fellows. This expressive and emotive element is an important component of language. But that which makes the latter human is categorically different: human language could never have developed out of animal cries as the French and British philosophers would have us think. Against them Herder maintains the essentially Cartesian position,

that human language is as distinct from animal cries as human thought is from their instinctive responses. Human language is the direct and inseparable corollary of human thought, and in this lies the explanation of its origin:

'Man being placed in the state of reflection peculiar to him, the first time this reflection acted freely, language was discovered. ... The discovery of language is therefore natural to him as man. ... He shows reflection ... not only by clearly and accurately observing all the properties, but by acknowledging one or several as distinguishing properties.' This takes place 'by means of a mark (*Merkmal*), which he must have separated, and which, as a mark or sign of reflection, remained clear to him. ... This first mark of reflection was the first word of the soul. With this human language was discovered.' (pp. 28-29) It is this internal mark, this internal denoting 'word' which for Herder is the essence of human language: 'It is not the organization of the mouth which creates language, for if a man were dumb all the days of his life, if he reflected, language must lie within his soul.' (p. 31)

Thus for Herder language is constitutive of human reason because it is identical with the basic operation of the human mind which makes reasoning possible: the distinction and the marking of distinguishing characteristics, which become the sign of the represented object, of the impression, and which make possible the comparison and differentiation of other such objects.¹³

Thus Herder bases his case on the constitutive function and turns Suessmilch's central argument against its author: without reason man could not have invented language, but he could not have learned it either, even from God; God could not have taught Adam language, as parents teach their children, for: 'Parents never teach their children language, without the latter at the same time inventing it themselves. The former only direct their children's attention to the difference between things, by certain verbal signs, and thus do not supply these, but by means of language only facilitate and accelerate for (the children) the use of reason.' (p. 33)

We see here a clear anticipation of Humboldt's view that a language cannot actually be taught but only awakened in the mental faculty. ([*Die Sprache*] ... laesst sich ... nicht eigentlich lehren, sondern nur im Gemuethe wecken). (W. von Humboldt, '*Über die Verschiedenheit des menschlichen Sprachbaues*, etc.' 1836, p. L)

Thus for Herder, reason and language grew together, inex-

tricably linked.

Next Herder discusses why this language had to be expressed in terms of sounds. Sound is the natural means of expression, as Herder has pointed out with respect to the language of animals. But the language of man is not natural in the way that of animals is: it is not fully developed instinctive behavior, inborn as such. Again this reflects the distinctively human characteristic of freedom. Language has to be learned, that is, developed through experience and example. So too language itself developed as the human species perfected itself, but remained linked to the natural means of expression: sound. The basis is the human capacity by reflection to set distinctive signs or marks; and it was natural to seize upon the sounds of nature and the sounds of animals to serve as such marks. Thus onomatopoeia is an important element in the original formation of language. Furthermore, sound, Herder held, is more intimately related to action; therefore verbs were invented first and nouns then derived from them.¹⁴ (p. 42)

But how could man turn into sound, or represent by sound, that which itself does not sound? Here Herder develops a very interesting theory of the interconnection of all the human senses. There is a powerful internal bond between all our sensations, no matter how diverse, and thus also between the sensations of sight and hearing, touch, taste and smell. The various senses are united in the one unitary power of the soul.

Most of the time we are not aware of these interconnections; only under extraordinary circumstances, thus in illnesses of the imagination (*Krankheiten der Phantasie*), do they come to our attention. (p. 49) Here one might justifiably claim that Herder has anticipated one of the central discoveries of Freudian theory.

The special role of sound as the vehicle of human language flows from the position of the sense of hearing in this interconnection of the senses: Herder considers hearing to be the median or middle sense. With respect to 1) externality, neither too remote, like vision, nor too internal, like touch; with respect to 2) distinctness, vision is too distinct, offers too great a wealth of features, while the more internal feelings like touch are too diffuse and obscure; with respect to 3) vividness, the internal feelings overwhelm one, while vision is too indifferent; with respect to 4) time, the internal sensations are too occasional and momentary, while sight offers too much simultaneously; only hearing presents its sounds to us one after the other, continuously and progressively. It seems here - and this notion is also retained in Humboldt - one can see the first traces from which de Saussure's

'law of the linearity of language' developed. So for Herder sound also occupies this middle position with respect to what is 5) expressible and 6) its position in the development of human capacities. (pp.52-55)

Springing from this central position of sound within the basic relationships of human psychic structure, language is thus by no means arbitrary, and sound symbolism underlies all its formation. And the traces of this original sound symbolism are more perceptible in the more primitive and more ancient languages. Herder set up five characteristics of the age of languages, what may be called five rules of the development of language.

1) the older and more original languages are, the more the 'analogy of the senses', the sensual qualities of the impressions, is noticeable in their roots. (p.56)

2) the older the language, the more these various sensual feelings are intermingled. (p.57) Thus it is basically fallacious to look for 'true etymologies' which will reveal the 'nature of things': the oldest ideas are the least clear.¹⁵ And the complexes of subjective feelings are so national, the words thus determined so much by the way of seeing and feeling of the country, the time and the circumstances, that these etymologies reveal, not the nature of things, but the history, way of thought and literature of the country, as well as the darkest regions of the human soul, where the concepts are intermingled and intertwined. Here again we can discern the origins of Humboldtian conceptions – indeed, the one which has been most influential of all, that of the intimate interconnection of language and the nation's way of thinking and feeling.

3) the older the language, the less logical the ordering of concepts and the more prodigal its wealth of synonyms. (p.61)

4) the older the language, the less abstraction: for the human soul has no reminiscence of abstractions from the domain of the spirits, which it has not attained on the occasion of sensation, or which has not been awakened by this (So wie die Menschliche Seele sich keine Abstraktion aus dem Reiche der Geister erinnern kann, zu der sie nicht durch Gelegenheit und Erweckung der Sinne gelangte). (p.65) The Platonic theory of reminiscence is not denied, but reminiscence can only arise 'on the occasion' of experience.¹⁶

5) the older languages have less grammar, that is, less regular and less economical grammars. (p.67)

As the languages evolve, they become more and more removed from their emotive, sensual and sound symbolic origins, their

grammars become more orderly, their abstractions more extended and refined.

If Suessmilch argues that even the most primitive languages are not entirely 'unapt' for science and philosophic concepts, then Herder replies that this only proves that all languages are human, for there is nowhere a man so primitive that he is entirely unapt for science. As for abstraction - there is no human reason without abstraction; there is no abstraction without language; there is no language without abstraction. (pp. 66-67) It is interesting to see how the notions introduced by Hobbes' constitutive nominalism are here transformed to take on the very opposite import.

2) The second main criticism of Rousseau - and as well of Suessmilch and indeed the entire Enlightenment view - can already be discerned from what has been related above: it is directed against the conception of a conscious invention or intellectual institution of language. Language springs naturally from man's essential nature, it grows and develops naturally with mankind's development. Edward Sapir, in his Master's Dissertation on Herder's essay, considers this the most original and important of Herder's contributions.¹⁷

In the second part of the essay Herder describes this development in more detail. He sets up four principal laws (*Naturgesetze*) of the human race:

i) 'Man is a freely thinking, active being, whose powers operate progressively, therefore a creature formed for language.' (p. 75)

Thus in the law man's progressive development and language are brought into direct conjunction. The whole concatenation of circumstances in the human soul is such that each of these circumstances continues the evolution of language. No matter how powerful the memory of the higher animals, no one animal improves the condition of the whole species, because none has generalized experience in order to exploit it. But in man the power of reflection links up the present states to past and future states, and because of this man must always think ever better, and therefore speak ever better. This continual development and improvement cannot be accounted for in Suessmilch's theory; if Suessmilch points out that all languages have developed in the same way so that they all have the same basic structure, Herder replies this is because all languages are human. Herder does not deny that all known languages have eight parts of speech, though he denies that they had these originally, maintaining that the parts of speech developed out of each other.

Against the conception of language 'invented' by philosophers Herder maintains that language could only have been 'invented', that is, originally developed, in a period radically different from ours, where there was no refined and socially organized learning, no coldly abstracting intellectuality; only in a more primitive age where sensuality and feeling were still much more powerful and vivid, where the whole human soul still worked with undivided energy, there, driven by inner need and external requirement, man invented language.¹⁸ That this is a highly romantic conception is clear. What is also interesting is the resemblance to Humboldt's notion, that there was an early stage of human development, where language was the chief production of the peoples.

ii) 'Man is essentially a social creature; the cultivation of language is therefore natural, and necessary to him.' (p.89)

Because of man's physical weakness, the human female's need for protection, the infant's need for care and education, which results from man's lack of specific instinct, man is a social creature from the very beginning. Because animals possess specific instincts, and are thus instructed by nature, the individual animal remains isolated; therefore there is no progressive development within the species. But man's dependence on instruction means that the human gathers ideas not for himself, but in order to communicate them. This aspect of human nature makes language requisite from the beginning. No man exists for himself, but is incorporated (*eingeschoben*) in the whole species, the individual exists for the continued succession - and the link that binds man within this succession is language, through which the child internalizes the feelings of his parents and transmits them in turn to his children. Thus language forms the ethnic entity - 'die Sprache wird Stamm' (p.93) - and preserves the ethnic experience. Thus, the role of language in forming the nation and the national 'Geist' and individuality, another central theme of Humboldt.

iii) 'The human race could not possibly continue as only one herd, confined to one language; therefore the formation of diverse national languages takes place.' (p.97)

Unlike the various animal species, the human species is not confined to any climate or region. As the human race spreads over the globe, the diversity of the peoples, and thus the diversity of their languages, becomes protean in form. Geographical peculiarities and changes, influences of climate and nourishment, accelerate the differentiation. Natural hostility between tribal groups intensifies and is intensified by the difference in language.

Underlying the diversification of languages as its ultimate

cause is what Herder holds to be the fact, that the language of each individual must differ, as the individuals themselves differ.

iv) 'As in all probability the human race constitutes one progressive totality, from one origin and in one great economy (Haushaltung), so this is true also of all languages, and with them the chain of human cultivation (Bildung).' (p. 105)

Through language there are interconnections of all human thought into past and future, so that the first thought of the first human soul is linked with the last thought of the last soul; and thus language is the treasury of human thought, and the sum of the activity of all human souls. (It is remarkable how close Herder here approaches to Humboldt's 'energeia' concept, though of course not fully, nor does he realize its implications). The whole human race is descended from one pair of parents, and the common origin of man is proved by the uniformity of the grammars of all languages; only the grammar of Chinese is an exception (but I doubt that therefore Herder, like our State Department, refuses to consider the Chinese part of the human race). Thus there is only one human race (*Menschenvolk*) on earth and one human language, though this race has differentiated itself into local species, and so too has its language.

Thus Herder strives here to attain the conception of the evolution of mankind in its full diversity, and yet to place this within the unity and continuity of the whole human race. Unity in diversity, the sources of this diversity, and the bonds that bind it into unity, this too is a central theme of Humboldt - as indeed it is of much of German thought in this period of its greatest creativity. And Herder's conception brings to mind Humboldt's statement that one can just as well say that the whole human race speaks one language as that each individual speaks his own distinctive language.¹⁹

Herder's chief contribution is his further extension of the concept of human creativity. For the Cartesians the phenomenon of creativity was a defining characteristic of the concept Mind. Herder extends it into the basic principle of progressive human evolution and human history. Today we no longer believe that the animal species remain fixed and do not evolve. Yet we cannot deny that this biological evolution is of an essentially different character than the progressive conscious evolution of mankind - human self-improvement; Herder further showed the intimate connection of language to this distinctive property of man. And these aspects of creativity must remain central in our efforts to understand language - and man.

FOOTNOTES

- 1 This work was supported principally by the U.S. Air Force (Electronic Systems Division) under Contract AF19(628)-2487; and in part by the Joint Services Electronics Program (Contract DA36-039-AMC-03200 [E]), the National Science Foundation (Grant GK-835), the National Aeronautics and Space Administration (Grant NsG-496).
- 2 The concept of human invention of language has generally been correlated to the conventionalist view, and thus arises in the ancient controversy about the nature of language, as purely conventional versus the 'physis' (or natural) view. The divine ordination of names naturally and logically supports the view that the latter are essentially related to, and reflect, the nature of the designate; therefore it is in turn natural for the conventionalists to argue for the human invention, indeed the concept convention implies, by itself, the human act by which the convention was made. Thus we find already accounts of the human invention of language in the Epicurean tradition, in Lucretius and in Diodorus Siculus. Hobbes, confronted with the Biblical account, argued that the names taught Adam by God were restricted to concrete terms - the names of the creatures - and that in any case, these divinely ordained names were lost at the Tower of Babel. Hobbes clearly was familiar with the Epicurean tradition; even if his own extensive knowledge of the classics is disregarded, his close friendship with Gassendi, the chief protagonist of Epicureanism in the 17th century, would serve as evidence.
- 3 Hobbes thought that animals, like man, are capable of the sort of reasoning that he calls 'Prudence', conjectural reasoning from experience. Indeed he asserted that some animals are also capable of a limited kind of 'understanding': they have the ability to link sounds - words - to things by association. Thus man shares with the animals all his natural intellectual capacities, and these are all explicable in terms of mechanism. It is only by the artificially developed skills due to the invention of language that man becomes distinctive and superior.
- 4 Hobbes' radical nominalism is stated repeatedly and emphatically in his main works: we can only imagine particular objects, in our mind we only have the particular images of these conveyed to us by the senses; the predicate 'general' or 'universal' can only be the predicate of names or speeches. Yet the problem remains: how can this generality of names arise? And here

Hobbes' leaning to a radical nominalism, which plays such a crucial role in his philosophy, perforce receives a rather serious modification: - In several passages in the early chapters of de Corpore he suggests that general ideas or concepts arise from the impoverished image of sensation or imagination: if we see a man far off we see only that this is an extended object, and thus arises the idea that is designated by the general name body; coming closer we see the man move, and thus derive the idea designated by 'animate', and so forth. And prior to using names, these ideas can be added to each other and subtracted. Thus here the radical nominalism seems to be essentially diluted.

5 Hobbes' philosophy developed in opposition to traditional scholastic metaphysics, but also specifically to Descartes and the Cartesian concept of Mind as distinct substance - by seeking to extend an essentially Cartesian mechanism, the mechanical explanation of physiology and animal behavior, to cover also those phenomena, that aspect of man, which Descartes found explicable only on the basis of mind. Thus while Descartes felt that mechanism could only be extended by drawing a sharp line limiting such explanation to the 'corporeal' side of man, Hobbes, as we have seen, sought to show that such a distinction only represented the old misconceptions and misuse of reason and language - very much in the manner of many contemporary philosophers.

Language was important for Descartes too: as evidence of the existence of mind in 'other bodies'. The ability of human beings to respond with utterances that are both original and appropriate, and thus not explicable from mechanical principles, reflects this distinctive property of Mind. However Descartes thought of language only as the reflection and expression of the mind, and does not seem to have considered or to have been interested in any constitutive role of language in human thought.

The importance of the relation to Descartes for the development of Hobbes' thought has been described by Frithiof Brandt in 'Thomas Hobbes' Mechanical Conception of Nature', Copenhagen 1927. Brandt however is mistaken in attributing Descartes' hostility entirely to assertion of claims of priority - especially in optics; certainly there were important substantive issues involved. And the materialist conclusions which Hobbes drew from their common mechanistic theory threatened Descartes at a point where in so many other instances he showed himself to be extremely, and not unjustifiably, sensitive: the

fear that these principles would be judged heretical and atheistic. For Descartes on language, see N. Chomsky's Aspects of the Theory of Syntax, MIT Press, 1965 and Cartesian Linguistics, Harper and Row, 1966.

- 6 Suessmilch's paradox is analogous to one of the main objections that has been raised against empiricism, with its assumption that the mind initially is a blank tablet:
 - i) Concepts, and the properties that constitute them, are derived from the comparison - similarity and difference - of our perceptions, which constitute experience;
 - ii) however, all such ascertaining of similarities or differences can only be based upon properties in respect to which the perception are like or unlike;
 - iii) therefore the properties of which concepts are constituted cannot be derived from experience, from the comparison of perceptions; the properties, or at least primary properties from which they can be derived, must be prior to experience, thus innate.
- 7 The claim that all languages are similar to their basic structure, that is, that there are linguistic universals corresponding to the universal properties of human minds, and constituting human language faculty, is what underlies the concept of a 'Grammaire Générale', so much attacked by 19th and 20th century linguists. However, recent research in Generative Grammar indicates that this claim may have much more validity than a purely descriptive characterization of languages had allowed one to suppose. See Chomsky, op. cit. and 'Current Issues in Linguistic Theory', Mouton, 1964.
- 8 In the Nouveaux Essais, Book III, Ch. 1, 2 Leibniz points out the constitutive function of language. The evidence for Hobbes' influence on Leibniz is given in Toennies, Thomas Hobbes, der Mann und der Denker; Couturat's objections to attributing any influence of Hobbes with respect to Leibniz' logic seem to me to be too categorical. To be sure, Leibniz' metaphysical outlook is radically different. But in intellectual history derivations generally take on a selective form, when the ideas taken over from predecessors are put into a new context; indeed this seems to be the main way ideas evolve and develop.
- 9 Page references are to the St. Martin's Press paperback edition of the First and Second Discourses edited by Roger D. Masters, 1964.
- 10 The difficulty affects not only the invention of language, but of all the arts and sciences. It is not only the attempt to purge

the conception of man in his original state from all illegitimate attribution of aspects only to be found with the development of later civilization, which is to blame for this difficulty, but also Rousseau's chief purpose in the essay, to level a basic critique against the civilization of his time, and all those aspects of civilization which degrade and pervert man's essential humanity. The 'State of Nature', that is the hypothetical model of man's original, and thus pure and essential nature, is therefore contrasted favorably with the later departure from this state. In giving it this positive evaluation, Rousseau is led to portray it as such a satisfactory state, that it becomes difficult for him to explain how man should ever come to change it. This underlies the break between the first and second part of the Discourse. For the insights into Rousseau's writing, insofar as these have any validity, I am greatly indebted to Prof. Heinz Lubasz.

- 11 It is interesting that in Rousseau the formation of geographic barriers plays a similar role in explaining the differentiation of languages that it does in Darwin in explaining the differentiation of species. In this respect too, it is of interest that Rousseau stresses repeatedly that the development of language by man must be conceived in terms of a much longer time span - hundreds of thousands of years - than the traditional six thousand year time span still commonly accepted by most of his contemporaries, and by Suessmilch too. For the role of this traditional chronology in the intellectual history of this time, Stephen Toulmin and June Goodfield: The Discovery of Time.
- 12 Page references are to the Akademie-Verlag (Berlin) edition of 1959, Johann Gottfried Herder, Ueber den Ursprung der Sprache, edited by Klaus Träger.
- 13 Here language is no longer defined in terms of the sensual sign, the spoken word, as its essential characteristic (as it was by Hobbes), but rather in terms of the initial and characteristic mental act, the conceptualization in terms of the mark, or distinctive property. Here, as in so many other places, Herder follows orthodox Wolffian doctrine. The radical nominalism of Hobbes could not be consistently maintained even by its originator, as we have seen (Footnote 4). Here it has disappeared entirely.
- 14 Thus in its derivation from the distinctive sounds of nature imitated by primitive man, and combining with these the emotive component that is the expression in the sounds of

living beings, and that man also expresses in his vocalizations; thus fusing in the perception of the object the subjective feeling toward it: it is in this that the poetic character of the most ancient languages lies. For Herder holds that poetry is older than prose - and even more, that the first language of man was song, as a tradition of antiquity reports. (pp. 45-46).

- 15 Thus Herder's resolution of the ancient 'nature-convention' controversy: Language does not reflect the nature of the things signified in language, i.e. not the nature of the things themselves; but neither is language conventional and thus arbitrary. Rather it reflects the nature of the human mind of which it is the spontaneous and natural product; and as Herder's basic approach is throughout historical, language reflects the human mind in its evolution through the history of human cultures and civilizations.
- 16 The formulation here seems somewhat reminiscent of Kant, in apparently granting the existence of a priori concepts - the 'abstractions' which are the content of the reminiscences - but that these arise only on the occasion of sense experience. Herder had studied under Kant in the early 1760's, thus long before the completion of the Critical philosophy, and the essay on language origin also antedates the publication of the first Critique by a full decade. However Rudolf Haym in his biography of Herder points out that Kant's teaching, already in the '60's had led his student to a critical view of the orthodox dogmatic philosophy. This however led Herder to quite a different viewpoint than that at which his teacher finally arrived: to a historical view, in which the errors of past philosophical systems were not to be characterized and understood simply as such, but rather as steps or phases in the historical development of the human intellect. This is of course the approach which was then worked out more fully and systematically by Hegel. After the publication of the Critiques and the triumphant spread of the critical philosophy, Herder turned into a violent opponent of Kant - in his Metakritik and Kalligone. For the account of this and Herder's relationship to Kant, see R. Haym Herder nach seinen Leben und seinen Werken (Berlin, 1877). Robert T. Clark, Jr. in Herder his Life and Thought (Berkeley and Los Angeles, 1955) has criticized Haym as not doing justice to Herder because of Haym's own Kantian viewpoint. However it seems to me that this objection is not justified; Haym acknowledged fully the correctness of some of Herder's criticisms; and where Clark

goes beyond this to voice more basic agreement with Herder's views, it seems to me that in many instances he only shares Herder's inability to understand the Kantian arguments.

- 17 Sapir wrote his Master's thesis at Columbia on Herder's Ueber den Ursprung... It is published as an article in Modern Philology, 5, 1907-8. pp. 109-142. Sapir agrees with Haym about the importance of Herder's influence on Humboldt (which is most interesting, as it indicates that Sapir was familiar with Humboldt's work and aware of its importance, thus showing Sapir's link with the Humboldtian tradition). Sapir also mentions that Steinthal in his Der Ursprung der Sprache denied any influence of Herder on Humboldt. This latter work ran through many editions. In the 1888 edition Steinthal's view is not so unambiguous on this point. He does indeed make such an assertion: that Humboldt cannot be explained in terms of any prior influence, but only 'out of himself and out of his time' (p. 10). Herder and Haym were only ideally predecessors of Humboldt, without any actual connection, they only prepared the spirit of Humboldt's time. But on p. 81 Steinthal says: 'As one sees, Herder has perhaps already touched on all the points, which Humboldt has brought out. But the important thing is that Herder has only touched on them, has not grasped the contrasts (Gegensaetze) in their full seriousness, has only played with them, more brilliantly and more mystically.' Given this latter statement, and all the evidence, direct and indirect, of Humboldt's familiarity with Herder, it seems difficult indeed to deny any 'actual connection'.
- 18 Herder's interest in language developed from the issues in German literary life at this time: the struggle against French hegemony in the arts to found a native German tradition. Central in this was the assertion of the propriety of German as a literary language, from which developed discussion of the nature of language in relation to literature and philosophy. At the same time Greek culture was investigated to confront French classicism with a truer picture of classical antiquity (Winckelmann). In the early writings on German literature Herder had already written on the Ages of Language (analogously to the Ages of Man) on Greek poetry and literature compared to that of the Romans, and had begun studying the Old Testament as poetry, as an early epic similar to the Homeric poems, and thus as a historical document. The Bible represented the word of God as content, but in its actual form it was couched in

terms of the culture and spirit of those who wrote it down - thus the culture and spirit of the Ancient Orient. It is further evidence of Herder's remarkable historical sense, that he saw what many Classicists and some historians have not fully grasped even today: that Greek civilization could not simply be understood as the beginning of European culture, a beginning, so to speak out of nothing, but rather as developing under the influence of the older Near Eastern civilizations, in the midst of which Greek culture arose. The Greeks themselves were fully aware of this, and say so in a multitude of statements; however, 19th century prejudice against 'inferior Orientals' caused many scholars to ignore or explain away this evidence. Thus in Herder there is a unified conception of the origins of our culture, linking the Biblical and the Classical traditions from the very beginning, instead of their merely flowing together in the Hellenistic period. See Haym, op. cit. Zweites Buch, Zweiter Abschnitt.

- 19 The sources of this complex of conceptions lie in Leibniz, in the Leibnizian concept of Force (*Kraft*) in the unitary principle of the Divine Spirit underlying all the diversity of the phenomena. In Herder these principles are mixed rather eclectically with conception drawn from British empiricism, and modified by the Romantic preoccupation with creativity and historical evolution. The subjective sceptical elements drawn from Hume, are reconciled with a realism that sees the possibility of knowledge of nature, by the assertion that it is the basic principle of nature which underlies and finds its highest expression in the human mind: nature can be known because that which knows it is one with nature, there is one unitary principle at work in both, the Divine Spirit. Again one can see the derivation from Leibnizian metaphysics, though in Herder these conceptions take on a more sensualistic and naturalistic form.

ASPECTS OF MODISTIC GRAMMAR

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It is encouraging to note the increasing interest that linguists everywhere are beginning to show in the long history of their science. Apart from its own intrinsic value, the examination of a linguistic theory of the past will in addition prove to be a source of great scholarly interest in terms of the intellectual trends in which such a theory was embedded. This is certainly true of the status of grammar in the Middle Ages and the interest it generates for the historian of linguistics and as well as for the historian of ideas.

Throughout the Middle Ages, the study of grammar was always to the forefront and this was in part due to the place grammar enjoyed as the first member of the trivium and therefore its necessary position in the curriculum of the mediaeval university. By the late Middle Ages, grammar had achieved a status not unlike that of linguistics today, that of a semi-autonomous discipline.¹ By the late 13th century grammar had become a speculative science and during this period we find a group of speculative grammarians who are of particular significance for their own intrinsic value and for their exemplification of my general thesis. These were the Modistae (known now as such because of their use of modes of signifying to describe their grammatical categories); they represent a group of grammarians who produced theories of grammar which show a very great degree of sophistication.²

The general principle of the descriptive procedures of the Modistae was that of a tripartite progression, the first part being

a description of their metalanguage and analytical processes, the second the application of this technical language and processes to the description of the word-classes of Latin (though it must be understood that the description of Latin was not their object); the third part contains a sketch of their syntactic theory.

The nature of Modistae metalanguage and its application to the description of the word-classes of Latin has been described in considerably more detail elsewhere³ but it can be restated briefly as follows. The preamble, which I have renamed metalanguage, was used to describe the development from the sound to the word, from the thought to the expression, and from the thing to be signified to the thing as it is signified. We can arbitrarily divide, for ease of description, the metalanguage into elements and categories; the elements consist of a progression from vox (expression), signum (sign), dictio (word), and pars orationis (word-class); it must, however, be understood that the Modistae excluded phonetics altogether. Oratio for the Modistae was not 'speech' but sentence, so that 'pars orationis' can perhaps be best described as 'minimal sentence bit'. The categories consisted of a progression of modus essendi (mode of being), modus intelligendi (mode of understanding), and modus significandi (mode of signifying).

The sound will also be a sign and can therefore be used to designate something which has been understood by the mind. Everything has a mode of being which can be conceived by the mind by means of the mode of understanding. It should be noted that by 'thing' it was not intended by the Modistae to refer to just anything substantial but rather to anything that can be grasped by the mind.⁴ The sign acquires the potentiality of signifying as a result of which it becomes a word, and similarly once the stage or act of understanding has been reached, the thing is now capable of being signified by means of the mode of signifying, i.e. it is potentially signifiable. The process does not end here; the dictio or word acquires the mode of signifying which turns it into a pars orationis, and this is the minimal grammatical unit which has the potentiality of consignifying or functioning syntactically. The pars orationis is thus a combination of the thing itself, the understanding of the thing, the expression of the thing, and the signifying of the thing. It does not however become a valid grammatical unit until it acquires the act of consignification by means of which it can fulfil its syntactic function.

The tools of Modistic description of the word-classes as such were the modes of signifying which are divided into essential and

accidental.^{4a} The essential mode was further divided into general and specific, the general mode being used to state qualities and features that the word-class in question held in common with other word-classes and the specific to distinguish it from all other word-classes but in particular from the word-class which has the same general essential mode, e.g. the verb and participle share the general mode of becoming, but the verb possesses the specific mode of separation from the substantial element, i.e. the nominal suppositum (subject), in contrast to the participle which, because it possesses features similar to those of the adjective, signifies by means of the specific mode of adhering to the nominal suppositum. It is in part by virtue of these distinctive specific modes that the verb and participle cannot have the identical consignification, i.e. syntactic function. The contrast between general and specific is patterned on the contemporary philosophical contrast of matter and form; the general is what the two word-classes have in common and the specific is what renders them discrete.⁵

The accidental mode corresponded to a large extent to the traditional accidents of grammar, but it would not be strictly accurate to equate these absolutely, since Modistic use of the term accidentia is coloured very much by contemporary philosophical usage of the term.⁶ The distinction within the essential mode of signifying of general and specific permitted a grammatical statement which is tantamount almost to a system of 3 word-classes; by means of the specific modes, these 'super-classes' are divided into the component *partes orationis*. Once the *partes orationis* had been described, the Modistae proceeded to a description of the syntax of these word-classes.

Scholars have maintained that syntax was the main object of mediaeval grammatical writing,⁷ but on this subject the student of the history of linguistics finds himself somewhat in a dilemma; there is no doubt that the syntactic theories of the Modistae are original to a degree and yet there is at present little documentary evidence to support the argument that their syntactic theories were as extensive as their word-class theory. A greater critical apparatus may well enable the scholar to refute or confirm this statement but of the grammarians available to us in a modern critical edition, two only have a section on syntax. Be that as it may, it is worth pointing out that the Modistae, in contrast to many of their predecessors, were not prescriptive grammarians; they were teachers, teachers of grammar not of Latin, and they speculated on the nature of grammar. Thomas of Erfurt's section

syntax, for example, represents an attempt to break away from tradition and, despite its many shortcomings, it is a concise, very systematic and very original statement of syntactic theory.⁸

Modistic syntactic theory can be divided into four parts, i.e. principles of construing, construction, congruence, and completion. The principles of construing were based on Aristotle's four causes of material, formal, efficient, and final, and these were to be used in the analysis of the three stages of syntax, i.e. construction, congruence, and completion.

The theory thus calls for two inter-related processes: firstly, the sequence of construction which represents binary combinations of constructibles, congruence which is the concord of such combinations, and completion which completes the process of expressing a mental concept and, in addition to all the other requirements, completion requires a complete construction to contain a subject and predicate; secondly, each construction is subject to analysis in terms of the four principles of construing. The material represents the members of the potential construction, the formal represents the construction itself, the efficient the congruence, i.e. the mutual appropriateness of the construction and the final represents the completed construction.

It will be seen thus that syntax was viewed as a series of stages; just as the mediaeval metaphysician conceived reality as a hierarchy, so too the Modistae conceived of a similar hierarchy of grammar; the stages of material and formal deal more particularly with the word-classes as such,⁹ but the efficient and final embrace requirements which are much more grammatical in a formal sense. This is but another way of saying that sentence types will be described in terms which are to a large extent formal but these sentences were themselves based on criteria which were metaphysical rather than formally grammatical.

It follows that in terms of importance the descriptions of the Modistae of the construction come first, since the construction must be established before its concord can be described; similarly, the description of the congruent construction must take precedence over the descriptive requirements of a 'complete' construction - complete in the sense that the Modistae used the term. Their procedure, therefore, was to define the construction before describing the different constructions according to the principles which have just been outlined; once the congruency of these different constructions had been established, the Modistae set out the nature of congruence and completion as such.

The definition of construction as seen by the Modistae refers to

the totality of a construction; in fact, construction, as defined by Thomas of Erfurt, seems to imply a second definition, i.e. as a 'significant group of words', whereas the division of construction points to the classification of each construction as a constitute made up of two constructibles. Construction can be divided in the first place into transitive and intransitive, each of these constructions being further divided into 'actuum' and 'personarum' which can perhaps be best described as major and minor colligations.¹⁰

Every construction consists of two constructibles only; such a scheme¹¹ has been projected, particularly by Thomas, into a conception of syntax as a series of favorite sentence type propositions such as subject-predicate and verb-nominal oblique, or as a series of minor colligations consisting of the determinable element and its determination. In each of these constructions one member will be the dependent member and the other, the determinant.¹² This relationship establishes the first essential division in their system of constructions; if the first constructible is the terminant and the second member therefore the dependent, we have an intransitive construction,¹³ and a transitive construction will have the first member as the dependent and the second as the terminant member.¹⁴

Each basic type of construction can be divided into two kinds, i.e. major and minor. In all constructions, one constructible will be the terminant and the other the dependent, and in the case of the minor intransitive construction this relationship is more specific and consists of determinant and determinable. The first major construction is defined as the one that depends on the oblique, and the second as the one that depends on the suppositum; in a determinant-determinable relationship, however, the determinant is always the second constructible but this is not a matter of word-order - the determinant is logically the second constructible, i.e. in 'homo albus' or 'omnis homo', 'albus' and 'omnis' are the determinant constructibles and are the 'second' constructible since there must be a 'man' before he can be described as a 'white' (etc.) man. The constructible that depends on the suppositum depends on the principium and the constructible that depends on the oblique is said to depend on the terminus. The use of the terms 'principium' and 'terminus' derives from the use of these terms as criteria in the cases of the noun,¹⁵ and confirms that word order was looked upon by the Modistae as fundamentally functional. These relationships of first and second constructible, principium and terminus, etc., can be represented schematically

thus:

	<u>Constructible primum</u>	<u>Constructible secundum</u>
Intransitiva actuum	Socrates (principium) (terminant)	currit (dependent)
Intransitiva personarum	Socrates (determinable) (terminant)	albus (determinant) (dependent)
Intransitiva personarum	currit (determinable) (terminant)	bene (determinant) (dependent)
Transitiva actuum	lego (dependent)	librum (terminus) (terminant)
Transitiva personarum	filius (dependent)	Socratis (terminant)

The question is which will be the terminant and which the dependent, since we cannot have two of either in any construction.¹⁶ Thomas of Erfurt defined these by means of not very satisfactory notional criteria, i.e. that a constructible which, by reason of any mode of signifying, 'seeks' or 'looks forward' is the dependent, and the constructible which, by reason of any mode of signifying, 'gives' or 'satisfies' is the terminant.¹⁷ In actual fact, the description of these constructibles can be made much more economically, i.e. in a transitive construction the first constructible is the dependent and the second the terminant, e.g. lego librum, and in an intransitive construction the first constructible is the terminant and the second the dependent, e.g. Socrates currit; in other words, in any transitive construction the sequence is dependent-terminant and in any intransitive construction the sequence is terminant-dependent.

In the actuum (major type) construction, the dependent member will always be the verb (signifying by means of the modus actus, the mode of action), and the terminant member will be a nominal form. We have thus a system of NV and VN constructions.¹⁸ The intransitive personarum (minor type) type of construction represents various kinds of expansion by means of a modification of the N or the V element of the actuum construction; this modification can in effect be made by any type of word-class (pars orationis), since by definition, the dependent constructible in a personarum construction can signify by means of the mode of substance (modus substantiae),¹⁹ except that the preposition cannot determine the verbal members. In the transitive personarum construc-

tion we have a purely nominal piece in which the terminant constructible, which can be one of four cases, i.e. genitive, dative, accusative or ablative, will represent the variation in this type of construction. This division of transitive and intransitive, actuum and personarum does not, however, fall equally under the modern exocentric-endocentric type of construction; only one, i.e. the SP or NV intransitive actuum construction is an exocentric construction, all the others being endocentric; an additional qualification is imposed on the two members of the intransitive personarum construction in that one member will be the determinant and the other will be the determinable constructible – and this additional qualification can be applied to either member of the intransitive actuum construction. We can, therefore, present the various constructions according to the following scheme:

<u>Intransitive</u>	<u>Actuum</u>	<u>Personarum</u>
	NV: exocentric	N determination: endocentric
		V determination: endocentric

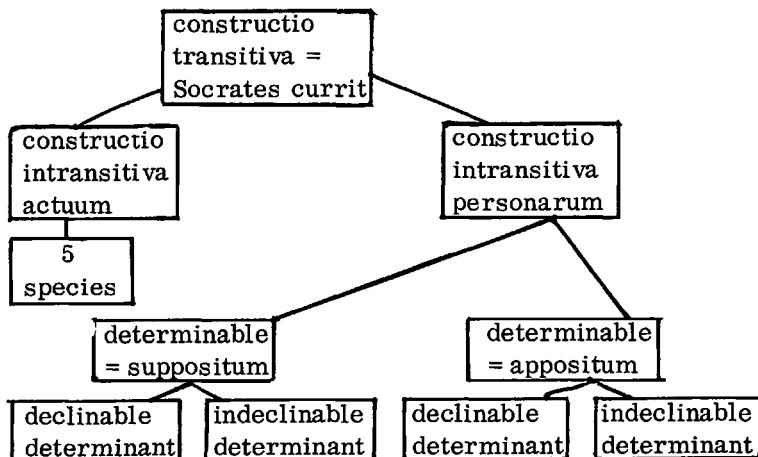
<u>Transitive</u>	NV: endocentric	NN: endocentric
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There are, in this scheme, two key concepts of interword relationships, i.e. dependentia and determination. Dependentia is a quasi-formal term used to express any relationship between two constructibles;²⁰ it should not be interpreted as a head-subordinate relationship.²¹ The terminant constructible must state the specific nature of the relationship, whereas the dependent constructible merely specifies the type of relationship, i.e. NV, VN, or NN without further specification, i.e. in 'Socrates currit', 'Socrates' is the terminant and 'currit' is the dependent, and in 'Socratis interest', 'Socratis' though in the genitive case is however the terminant and 'interest' the dependent; it is undoubtedly the dependent constructible which actually creates the relationship. Determination is used to describe the relationship between the member, either N or V, of the intransitive construction which has acquired an additional qualification or modification;²² in such cases we can talk about subordinate and head, the subordinate being the determinant constructible used to specify or qualify the head members of the construction, e.g. 'albus' is the subordinate in 'home albus' just as 'bene' is the subordinate in 'currit bene'.

There are five types of the NV type, i.e. the intransitive type of construction; these vary according to the case-form of the N element. Of the six cases of the nomen, all with the exception of the vocative which can never be the first element of a construction,

can be the N and therefore act as the suppositum²³ of these constructions, which can be exemplified thus and according to the following diagram:

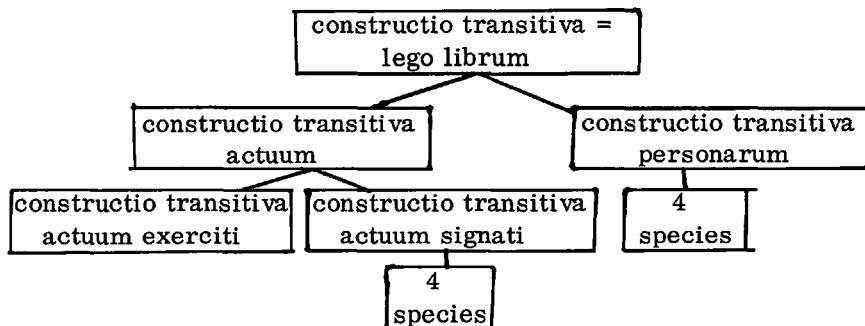
- | | |
|---------------|---------------------------|
| a) nominative | - Socrates currit |
| b) genitive | - Socratis interest |
| c) dative | - Socrati accidit |
| d) accusative | - Socratem legere oportet |
| e) ablative | - a Socrate legitur |



There are four species of the VN type, i.e. the transitive actuum type of construction, varying according to the N element; the nominative and vocative cannot function as the N element in these constructions which can be exemplified thus:

- | | |
|---------------|---------------------|
| a) genitive | - misereor Socratis |
| b) dative | - faveo Socrati |
| c) accusative | - lego librum |
| d) ablative | - utor toga |

and also by means of the following diagram:



The intransitive personarum constructions represent expansions of either the N or the V element, in which the N or the V will be the determinable element; the determinant member can be either a declinable or an indeclinable pars orationis. If the determinable element is the N, then there are four possible constructions, by making the determinant a declinable pars which will therefore be one of four possible types of adjective, e.g. denominative, relative, interrogative, distributive, e.g. 'homo albus', 'omnis home'; this type can be symbolized [A1].^{23a}

If the determinable element is the N and the determinant an indeclinable, there will be four possible constructions according to the different indeclinable partes orationes; this can be exemplified thus and symbolized [A2]:

- a) Adverbium - Tantum Socrates legit.
- b) Coniunctio - Socrates et Plato currunt.
- c) Praepositio - A Socrate legitur.
- d) Interiectio - Heu mortuus est.

If the determinable element is the V member, the determinant can be either a declinable or an indeclinable pars. If it is a declinable, we can have constructions such as: 'sum albus' or 'vocor Adrianus', in which we have either a copula, i.e. verbum substantivum, or a verbum vocativum, in which the dependence is 'backwards', and this type can be symbolized [B1]. If the determinant is an indeclinable, there will be only three possible types of construction depending on the type of indeclinable involved, since the preposition does not by definition construct with the verb; this type can be symbolized [B2]. Unfortunately, Thomas does not provide us with specific examples of this type of construction; however, the construction he used to exemplify the intransitive personarum, e.g. 'Socrates albus currit bene' can be analyzed into an intransitive construction of the [A1] type and an intransitive construction of the [B2] type, both of them being 'personarum' constructions, so that the whole construction can be analyzed thus:



The transitive personarum constructions are the NN type only, and there are four species of this type of construction according to the case of the terminant constructible, i.e. the second N, and can be exemplified thus:

- a) genitive - filius Socratis.
- b) dative - simili Socrati.
- c) ablative - celer pedibus

Congruence was the next step in their descriptive scheme after the construction. According to the Modistae, it was not enough to combine just any two constructibles; such a combination must satisfy three requirements, i.e. the conformity of all the modes of signifying involved, the collocation²⁴ of the constructibles as required by the context of situation, and the concord and government which must exist between the constructibles. Congruence is thus the proper combination of the constructibles by means of the mutual appropriateness of the modes of signifying required for any kind of construction.

The first two requirements are very closely linked; the proper combination of the constructibles can be achieved by the concord of their meanings or by reason of the symmetry of the modes of signifying. The latter was just as important to the Modistae as the former, since even they recognized that it would be impossible to describe a construction as congruent by virtue of the accord of the meanings of its constituent members.

The Modistae recognized that there are two factors involved here, i.e. the concord of the construction and its propriety stemming from the accord or non-accord of the members of the construction. This can be stated more linguistically, i.e. that we are dealing with concord at different levels; if we contrast '*cappa nigra*' with '*cappa categorica*', we can say that in both constructions we have the internal concord of gender and number, but in the case of the former we have the proper collocation of the members of the construction and this is absent in the case of the second construction. It is for this reason that the Modistae described the congruence of every construction before they discussed the feature of congruence as such; it is as though they intuitively recognized the primary need for internal concord and the secondary need of collocation²⁵ as the external concord by means of which the construction relates to the world of reality.

The third requirement stems from the fact that the Modistae recognized two kinds of grammatical agreement, i.e. government and concord which lead to require two kinds of conformity of the modes of signifying, i.e. complementary syntactic arrangement or modal uniformity which are discrete and mutually exclusive.²⁶ This means that the dependent constructible may possess certain modes of signifying which do not belong to it but which derive from the properties of the terminant constructible of which it is dependent; this is in effect concord. But if the constituent members of the construction possess modes of signifying deriving from their own properties, not from the other members, we have

an instance of proportionality, which can be generally equated to government, though it would not be inappropriate to equate it all to modern concept of rection.

The third stage of Modistic syntax is completion and this completes the progression involved in the three stages of construction, congruence, and completion. We have seen that a construction must consist of a binary combination of constructibles which must demonstrate grammatical and collocational concord. Completion requires that in order to create a perfect construction, it must contain a suppositum (S) and appositorum (P), but there is a further requirement which reflects much more accurately the nature of the technical term 'perfection' (completion).

The perfect construction requires, as was just stated, grammatical and collocational concord of S and P, but in addition, all its dependencies must be completed, which means that, in every construction which must, by definition, consist of terminant and dependent, the dependence of the dependent constructible must be completed, i.e. a construction such as 'Si Socrates currit' would be incomplete, since the constructible 'si' added to the construction 'Socrates currit' (which is in fact complete) creates a new dependence. This idea of completion is a means of expressing, in Modistic terms, the idea of the end of a grammatical structure, i.e. one with its internal relations congruent and one with no external syntactic relations. Such, to the Modistae, was a complete sentence.

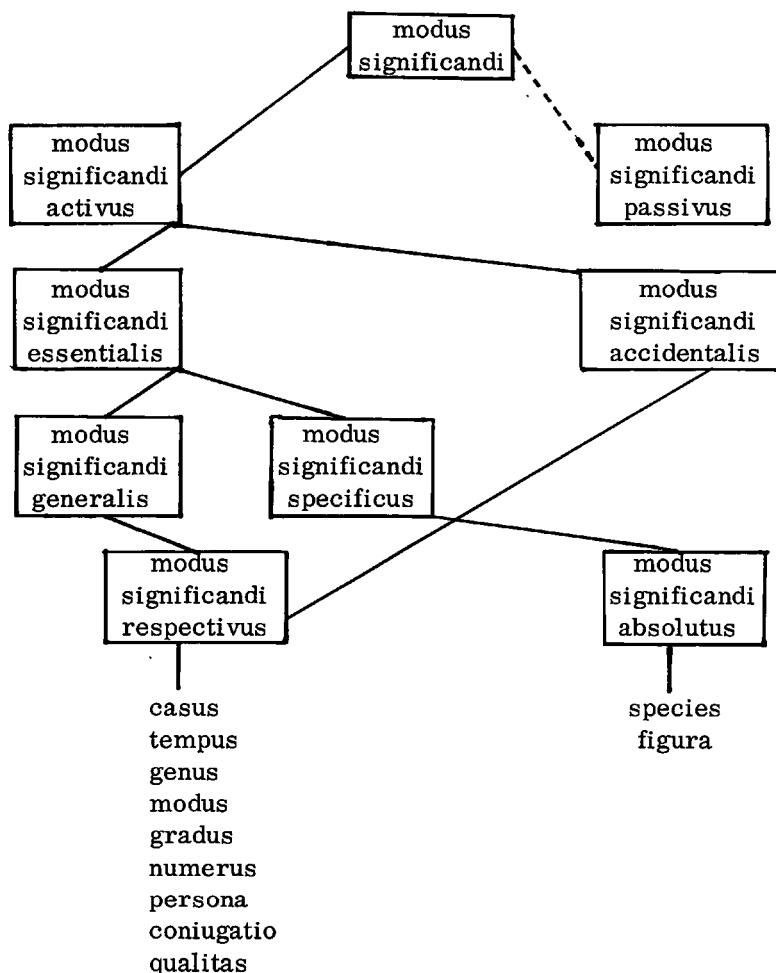
We should not exaggerate the power of Modistic grammar. There were serious lacunae in it as is surely obvious to all of us. In their endeavours to produce a general theory of grammar, they were defeated by their own epistemological premises, because within such limitations they were logically consistent and they were not linguistically naive. We must dismiss their theories because we must reject the whole system of thought behind such a theory. It would, however, be unfortunate, because we are caught up in the enthusiasm for the particular linguistic theory to which we subscribe, if we were to dismiss the Modistae and other grammarians of the past as being of little or no interest. I would suggest that in addition to the light that the examination of linguistic theories of the past throws on their intellectual foundations, there is another valid reason for such examination. Linguistics is a second-order language and there is therefore a synchrony and diachrony of linguistics just as much as there is of language itself.

FOOTNOTES

- 1 I have to add the epithet 'semi', because by the 13th and 14th centuries, although grammar had freed itself from the necessary ties of literature, it was still very much the hand-maid of logic.
- 2 There is already available quite an extensive literature on the Modistæ; the following is a select bibliography:
 - 1) M. Grabmann, Mittelalterliches Geistesleben (Vol. 1). Munich, 1926.
 - 2) M. Grabmann, 'Thomas von Erfurt und die Sprachlogik des mittelaltlichen Aristotelismus.' Sitzungsbericht der Bayerischen Akademie der Wissenschaften. Munich, 1943.
 - 3) H. Roos, 'Martinus de Dacia und seine Schrift de Modis Significandi.' Classica et Mediaevalia 8 (1946), 87-115.
 - 4) H. Roos, 'Sprachdenken im Mittelalter.' Classica et Mediaevalia 9 (1947), 200-15.
 - 5) H. Roos, 'Die Modi Significandi des Martinus de Dacia.' Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters 37 (1952), 1-161.
 - 6) R. H. Robins, Ancient and Mediaeval Grammatical Theory in Europe. London, 1951.
 - 7) M. Heidegger, Die Kategorien-und Bedeutungslehre des Duns Scotus. Tübingen, 1916.
 - 8) J. P. Mullally, 'The Summulæ Logicales of Peter of Spain.' Notre Dame Publications in Mediaeval Studies VIII, Notre Dame, 1945.
 - 9) F. P. Dinneen, Introduction to General Linguistics.
 - 10) A. Otto, 'Magister Johannes Dacus und seine Schriften.' Classica et Mediaevalia XIII (1952), 73-88.
 - 11) G. L. Bursill-Hall, The Doctrine of Partes Orationis in the Speculative Grammars of the Modistæ (Ph.D. Thesis, University of London) 1959.
 - 12) G. L. Bursill-Hall, 'Mediaeval Grammatical Theories.' Canadian Journal of Linguistics 9 (1962), 39-54.
 - 13) G. L. Bursill-Hall, 'Notes on the Semantics of Linguistic Description.' (To appear in the forthcoming volume In Memoriam J. R. Firth) London, 1966.
 - 14) Siger de Courtrai, Summa Modorum Significandi, ed. G. Wallerand (Les Oeuvres de Siger de Courtrai, Les Philosophes Belges, Vol. 8). Louvain, 1913.
 - 15) Thomas of Erfurt, Grammatica Speculativa. Quebec, 1962.

- 16) Martin of Dacia, Tractatus de Modis Significandi, ed. H. Roos (*Corpus Philosophorum Danicorum Medii Aevi* Vol. 2) Copenhagen, 1961.
- 17) John of Dacia, Summa Grammatica, ed. A. Otto, (*Corpus Philosophorum Danicorum Medii Aevi* Vol. 1). Copenhagen, 1955.
- 18) Ch. Thurot, 'Notices et extraits de divers manuscrits latins pour servir à l'histoire des doctrines grammaticales au moyen âge.' Notices et Extraits des manuscrits de la Bibliothèque Impériale, Vol. 22. Paris, 1868.
- 3 Cf. G. L. Bursill-Hall, 'Mediaeval Grammatical Theories.' Canadian Journal of Linguistics, 9 (1962). 39-54.
G. L. Bursill-Hall, The Doctrine of Partes Orationis in the Speculative Grammars of the Modistae (Ph.D. Thesis, University of London) 1959.
- 4 The Modistae borrowed from contemporary philosophical theory a number of concepts and technical terms which they then adapted to the processes of grammatical description; one of these was the dichotomy of act and potentiality and this was used to explain the progressions which I have just mentioned.
- 4a The modes of signifying (see attached sheet).
- 5 It would be mistaken however to imagine that the Modistae used the matter-form contrast as anything more than a descriptive device.
- 6 Cf. F. P. Dinneen, Introduction to General Linguistics.
- 7 Ch. Thurot, op. cit., 237.
- 8 The influence of the favorite sentence-type of Latin and the restraints that logic placed on his concept of grammatical structure constantly show through his syntactic theory.
- 9 This is but one of the many examples of Modistic semanticisation of Priscian's semi-formal grammatical categories.
- 10 For the use of this term cf. J. R. Firth, 'A Synopsis of Linguistic Theory, 1930-1955'. Studies in Linguistic Analysis Oxford (1957), 13.
- 11 Such a scheme derives from a representation of scholastic dualism coupled with the syntactic theories the Modistae inherited from their Greek and Roman predecessors.
- 12 Thomas of Erfurt, 45.2: unius constructionis non sunt nisi duo constructibilia principalia, scilicet dependens et terminans.
- 13 Thomas of Erfurt, 47.7: constructio intransitiva est constructio in qua secundum constructibile...dependent ad primum; ut dicendo, Socrates currit.

4a. The modes of signifying can be set out schematically thus:



- 14 Thomas of Erfurt, 47.8: *constructio transitiva est in qua primum constructibile... dependet ad secundum... ut dicendo, percutio Socratem.*
- 15 Thomas of Erfurt, 19.2: *casus est modus significandi accidentalis nominis mediante quo nomen proprietatem principii, vel termini consignificat.*
- 16 Here as elsewhere, the Modistae refer to a metaphysical correlate to explain a grammatical feature. Substance in nature is a combination of matter and form, one of which is act and the other potentiality, and so in grammar a construction is made up of dependent and terminant.
- 17 Thomas of Erfurt, 47.6: *illud constructibile est dependens, quod ratione alicuius modi significandi tantum petit vel exigit; illud constructibile est terminans, quod ratione alicuius modi significandi tantum dat, vel concedit.*
- 18 These can be thought of as the favorite construction types of Latin and are imposed on the Modistae by their own grammatical tradition and traditional logic.
- 19 Thomas of Erfurt, 48.1: *constructio intransitiva personarum est in que constructibile dependens significat per modum substantiae vel quomodolibet aliter.*
- 20 Thomas of Erfurt, 45.2: *constructio causatur ex dependentia unius constructibilis ad alterum.*
- 21 This is something like the modern use of rection, cf. L. Hjelmslev, *Principes de grammaire générale*, 127–62, but it would be more appropriate to think of it as a functional relationship, cf. C. E. Bazell, *Linguistic Form*, Istanbul (1953), 33–37.
- 22 Thomas of Erfurt, 50.2: *cum determinabilis cum determinatione diversificatur secundum diversitatem determinationum aut ergo determinatio additur supposito, vel apposito, vel differenti ab utroque.*
- 23 The opposition of suppositum and appositum and the use of this opposition was one of the most important achievements of mediaeval grammatical theorizing; Peter Helias used the terms 'supponi' and 'apponi' to describe the subject and predicate, and these technical terms were eventually established as 'suppositum' and 'appositum', cf. J. Wackernagel, *Vorlesungen über Syntax*, Vol. 1, 23.
- 23a My doctoral thesis contains a more detailed description of Modistic theories of syntax.
- 24 Thomas of Erfurt, 53.3: *proprietas, vel improprietas sermonis causatur ex convenientia, vel repugnantia significatorum*

- specialium.
- 25 For the use of this term, cf. J. R. Firth, 'Modes of Meaning'. Papers in Linguistics, London (1957), 190-215.
- 26 Thomas of Erfurt, 53.5: cum conformitas modorum significandi sit principium constructionis et congruitatis, distinguendum est de conformitate, quia duplex est conformitas, scilicet proportionis, et similitudinis et quandoque utraque ad constructionem requiritur; quandoque autem sufficit proportionis tantum, quandoque autem sufficit similitudinis conformitas tantum.

Second Panel : HISTORY OF LINGUISTICS

Chairman:

Don Graham Stuart
Georgetown University

Panelists:

Karl V. Teeter
Harvard University
Hugo Mueller
American University
John Viertel
Massachusetts Institute of Technology
Geoffrey Bursill-Hall
Simon Fraser University

Discussants:

Francis P. Dinneen, S.J.
Georgetown University
Gerhard Nickel
University of Kiel
Victor E. Smilgin
Georgetown University
John W. Scott
Georgetown University

DINNEEN: Could you give an example of an NV construction the Modistae considered exocentric?

BURSILL-HALL: 'Socrates currit': in their vague understanding of 'deep structure' the expressed logical subject was a pre-requisite for the expressed action of the subject.

NICKEL: Like Goethe and Kant, von Humboldt has survived many cultural, political and linguistic systems in Germany. This is due to one of three causes: all are geniuses, all were misinterpreted, or all are vague in many regards. I would say that in the case of von Humboldt, he was vague in many ways, though this vagueness can be the result of his genius. In particular, no one has been able, to my satisfaction, to explain the vague concept innere sprachliche Welt, and this is one question I would like to put to Prof. Mueller. Secondly, I would ask Prof. Mueller to account for the opinion von Humboldt once expressed, that Sanskritic languages are the most perfect form of language, since Prof. Mueller has suggested that von Humboldt is quite flexible on this point. Thirdly, I would like to ask what Prof. Mueller thinks of von Humboldt's view that languages are not in a continual state of development, but that there are productive stages followed by complete arrest.

MUELLER: From what you say, I would guess that you are not a Humboldtian. I feel, also, that your attacks do not hit the mark. While he may once have held that Sanskrit represented a perfect form of language, I would say that von Humboldt, like anyone else, must be allowed to develop his thought. To do him justice, we should accept as final, the views he expressed in the introduction to the Kawi grammar. What he has to say there, I think, sums up his life time of thought about language. But such an objection is peripheral - at one point, he retracted the view about the superiority of Sanskrit and said that Greek was superior to it. I think it would be misguided to speak derisively about him because of these inconsistencies. The man was not a professional linguist; he spent much of his life collecting materials and analyzing languages hitherto unanalyzed. We need not blame him for what he might have said about Basque or Tagalog or Delaware, especially since he summarized his views, and it was upon this summary that I based my presentation of his thought. I think you are wrong in thinking that I was explaining my own views of language; mine was an historical account of von Humboldt's work. I think it remarkable that a man of the 19th century has so anticipated our own insights into language, given the vast difference in the information about languages available to us and to him. Does that answer your

questions?

NICKEL: I was just saying that we tend to overrate him. And I would like to hear your opinion about the issue of vagueness, since you still haven't explained to me what the innere sprachliche Welt is. I've discussed this with Weisgerber for hours and even he does not know how to explain it.

VIERTEL: May I answer some of these points? Your quotation about the relative superiority of the Sanskritic languages in von Humboldt's view is quite correct, but the situation is even worse than this; in the passage you alluded to, von Humboldt asks what the state of the world would be like, had the Phoenicians won the Punic war, or if the Arabs had conquered the West. The Semitic languages would then have been dominant, and he thought that a result of this would have been no development of science or civilization such as the Sanskritic languages fostered, since he did not consider the Semitic languages apt for such a development. Because of my origins, this is a view for which I have very little sympathy. But I do not think that this needs to affect our evaluation of Humboldt too deeply.¹ Men are subject to the preconceptions of their time, and von Humboldt was a product of the period of growing German nationalism. That is why the idea of a national language, and the role of language in forming a nation had such importance. Von Humboldt's expressed views about the relative perfection of language are somewhat contradictory. Especially in the discussion of Chinese. For Humboldt Chinese was at the opposite pole of the IE languages, in terms of structure. Yet according to his evaluation of languages, if Chinese is like that, it should be far more ineffective for the expression of thought than the Indo-European languages are. Yet, he says, it is the very brevity and compositional character of Chinese that gives it its intellectual power. His whole idea of energeia means that language is striving to develop a perfect means of expression. Yet he vacillates between the idea of establishing a criterion for a perfect language and the idea that all languages are necessarily a part of the development of the human spirit, each language displaying a necessary aspect of human development. By actually saying this, therefore, he negates the possibility of any value judgment about the superiority of any language. This view is closer to his other views on mankind, the brotherhood of man, the equality of all peoples and his anti-empiricalistic attitude. His strongly expressed views against empirialism, which may of

¹(Added by author in subsequent correspondence.)

of course be partly due to the fact that Germany at that time had been a victim of empiricism.

As for the other question, what does innere sprachliche Welt mean? To be sure, this concept does have a certain vagueness, and in a way, at that stage, a necessary vagueness. Yet it is not so entirely incomprehensible, if it is understood as related to the effort, at that time, to get at the formative elements of intellectual processes, to try to see what are the mental structures that act to form our picture of the world. Humboldt distinguishes between the inner or internal form of language - that is, the intellectual structure of language, which can in certain ways be related to Chomsky's concept of the base structure - and the sound-form, thus closer to what we call the phonological component of language. For Humboldt this sound-form is the way the internal, intellectual, conceptual structures of language are actualized externally in sound. The form of the internal structure of the various languages also varies, though he has the concept of an ultimate or ideal logical form which is the same for all languages. In any case, the inner form varies much less than the sound-form. Let us say, for instance, that one language has realized aspect in its verb system, rather than tense; it makes a number of distinctions in tense that some other languages do not make. These would be intellectual or conceptual distinctions underlying this language, part of the 'inner form' of this particular language, and this inner form shapes the way in which the speakers of the language view the world, the way they conceptualize the world, the way they shape their concepts. I think this is a relatively accessible notion.

NICKEL: Von Humboldt doesn't just discuss sprachliche welt: there are three terms, innere sprachliche Welt, sprachliche Welt and 'aussere sprachliche welt'.

VIERTEL: You have two terms: 'innere form' and 'aussere form'. The term 'form der sprache' includes these two. So really 'three terms' means you have one general term, subdivided into two subsidiary terms. The inner form is conceptual, the outer the methods the language use to realize the concepts. For instance, in the tense-system of the verb we may have the distinction of the perfect tense, as inner form. English realizes this distinction by means of an auxiliary plus a verb. Another language realizes it by means of a verb plus ending. That is the outer form of the inner concept 'perfect tense'. I do not think that Humboldt's conception here is so very difficult.

There is one point to make historically: Humboldt did not think

of these things the way we do. As Hegel says - if I may mention that name - what the historian of ideas must observe always is, that in explicating ideas that are implicit in earlier thinkers, we are thereby transforming the ideas of these earlier thinkers; because a good part - perhaps the whole - of the process of intellectual development is the process of explication. Humboldt was grappling with concepts which were not well-defined in his time, for which the mathematical and logical tools were not present - and even today these have not yet been fully developed; therefore we should not be surprised that there are things which are not fully clarified, nor that there are problems remaining in his theory. If any linguist should tell me that there are no problems left in his theory, I should be extremely skeptical about him.

SMILGIN: Would the panel in general, and Prof. Teeter in particular, agree with me that science in general, and linguistics in particular, is a part of its time, a direct product of the disposition of society to foster a particular type of activity. Our period is one marked by preference for the empirical, and like other periods, ours tends to judge the accomplishments of predecessors in terms of our own, and in so doing, may lose sight of valuable contributions they have made, or fail to see that we, too, are products of our time. It would seem that the panelists have made an effort to regain sight of the need for maintaining continuity in our study, an effort which will help us understand our understanding of man's effort to know himself. Would the panel agree?

TEETER: I think I would agree in general with what you have said, which does not sound particularly controversial. Would anyone else care to comment?

BURSILL-HALL: I would merely like to repeat a statement made in the course of my paper, that a linguistic theory is embedded in an intellectual trend. We are, therefore, just as much children of our age as were the Modistae or von Humboldt.

MUELLER: I think that this is an expression of the reason why we are doing the history of linguistics: not just because we are interested in a period per se, but because we are interested in the implications the thoughts of people at a given time had on our thoughts about language now.

SCOTT: How would you relate Herder's thought to current work in psycholinguistics? Having studied under Sapir, who did his Master's thesis on Herder, it seems to me that there is an intimate connection.

VIERTEL: If you mean the relation of linguistics to a theory of psychology, a theory of perception or a theory of mind, I think, to

summarize it in one sentence, one could say that Herder represents the beginning of an attempt to deal with the interdependence of mind or thought and language in an historical, genetic fashion. He wanted to see how perception, conceptualization and language were related and develop a natural explanation for the connections. His beginning was vestigial and did not advance very far. Von Humboldt made more progress than Herder, but the main point is that Herder was aware of the problem and many of us have lost that awareness. The fact that Sapir did his Master's thesis on Herder is significant. The thesis is handwritten, though most of them were typed, even at this period. In it, Sapir shows Herder's views and the relation between von Humboldt and Herder, and it is easy to see that the point of departure for Sapir's development was this entire German tradition.

TEETER: I might add that Sapir's thesis is available in more accessible form than as a handwritten paper in the Columbia archives. It was published in the period Modern Philology 5.109-46 (1907-8), perhaps in an abridged version.

VIERTEL: I have compared them, and I believe the printed version is not abridged.

PANEL III
LINGUISTICS AND ENGLISH

SHAPING PRODUCTIVE VERBAL BEHAVIOR IN A NON-SPEAKING CHILD: A CASE REPORT

STANLEY M. SAPON

University of Rochester

Normal human beings, functioning as members of a language community, display both receptive and productive language behaviors. The supposition that these two behaviors represent two sides of the same coin, or are two manifestations of a behavioral unity, has been opened to question by the study of children who, classed as mentally retarded or brain damaged, demonstrate receptive language behaviors markedly superior to their productive behaviors. Not infrequent are children who have practically no functioning productive language, but demonstrate fair to good receptive language.

In a recent paper (Sapon, 1965A) I pointed out that formal linguistic analysis was not likely to contribute to our understanding or perception of these two behaviors, since a formal description of an utterance is the same for either behavior. A sentence is not analyzed one way when it is viewed as a production and another way when viewed as reception, yet it is apparent that people perform at different, and sometimes markedly disparate, levels in these two areas of language.

I have been intrigued by this problem, and have been concerned with finding approaches to it that will at least begin by illuminating the area. As I indicated elsewhere (Sapon, 1965B), it seems to be particularly useful to view these two behaviors in terms of the kind of control that they exercise. An individual can be said to have receptive language when his behavior comes under the control

of a speaker. Productive language implies that an individual has learned to control the behavior of his listeners through his own verbal behavior.¹

Stated in this light, it should be recognized that the processes involved in bringing an organism under stimulus control (receptive language) have not been as refined experimentally as the processes of shaping operant (productive) verbal behavior. It would follow from this that we are better prepared to teach a child to speak than we are to teach him to understand. To expand for a moment on this, it can be seen from a teacher's viewpoint that it is easier to evaluate and reinforce responses that make themselves visible or audible to the teacher. Understanding, an ambiguous term at best, frequently takes place outside the ken of the teacher - that is, inside the skin of the student, and is consequently more difficult to gauge.²

If it is easier to teach speaking than understanding, the fact that there are so many children who demonstrate some degree of receptive language, but whose productive language is deficient, raises a number of provocative questions about the development of these two behaviors. It would appear that when environmental elements, organic difficulties, or both, operate to interfere with fully adequate language behaviors, it is productive language that suffers the most. Another way of putting this is that optimal conditions of both organism and environment are more likely to be crucial to the learning of productive language than they are to the learning of receptive language.

The seeming paradox of poorer performance on tasks defined as easier to teach can be resolved by contrasting theoretically optimum teaching with the kind that actually takes place.

This is an appropriate point to call attention to one observation about language learning that is generally unquestioned - that is, the recognition of the random, unstructured, and largely unskilled kind of teaching that takes place in the natural environment.

It is the position of one school of thought that language learning takes place because of the haphazard environment.³ I offer the point of view that, considering the wide range of differences in achievement, the time taken to reach some criterion level, and the number of children whose verbal behavior is considered sub-standard, much language learning takes place in spite of haphazard environments.⁴

It is the purpose of the present paper to present the results of a direct experimental intervention in a typical case of a child who displayed no socially viable productive language. Part of the

typical nature of the experiment reported here is the preclusion of the possibility of effecting organic changes in the child...experimental intervention is restricted to behavioral modifications via limited control of the learning situation.

If we begin with an organism that is admittedly not intact, and bring about significant changes in verbal behavior by manipulating only the learning environment, we will have a clearer perception of the environmental variables relevant to the acquisition of the behavior under scrutiny.

From a behavior theory standpoint, the issues of diagnostic certainty are less relevant than in a medically therapeutic situation. From a physician's point of view, the etiology of a disorder may be essential for indicating the 'treatment of choice'. A behavioral statement of the problem is, 'Here is an organism which, for reasons unknown or unknowable, has failed to acquire certain repertoires. This organism does, however, demonstrate other repertoires which contain elements of behavior in common with those in the repertoire we find lacking or deficient. Is it possible to shape the organism's entering behaviors in the direction of the sought-after repertoire?'⁵

An appreciation of what is meant by 'shaping' behavior therefore becomes important for the description of the strategy and procedures applied in the experiment. (Skinner, 1953).

I emphasize this point because there have been a number of experiments, ranging from operant conditioning of adult verbal behavior through therapeutic applications, whose results are ambiguous.⁶ Many of these studies apply reinforcement in an attempt to increase the probability of emission of a selected behavior. By itself, however, reinforcement cannot bring into being new behaviors. If the contingencies for reinforcement remain constant, we will selectively strengthen existing, already present, behaviors. Effective shaping depends not only upon the shift of reinforcement contingencies, but also upon the identification of those behavioral elements whose strengthening will lead to successively closer approximations of the terminal behavior.

A tape (7 1/2 i.p.s., 5 min. 24 sec.) of the utterances discussed in the Case Report that follows is obtainable from the Publications Department of the Institute of Languages and Linguistics, Georgetown University, Washington, D.C. 20007 for \$ 1.50.

CASE REPORT

Early in December, 1964, a ten-year old boy was brought to the Rehabilitation Clinic of Strong Memorial Hospital of the University of Rochester for two weeks of intensive in-patient diagnostic and prognostic study.

The surviving member of a premature twin birth, the boy had been classed as probably brain-damaged, mentally retarded, I.Q. less than 50, trainable, and had been attending a Special Education class. The most striking gross feature of his behavior was the almost total lack of articulated productive speech. This, coupled with a slight irregularity in gait, lent support to the long-standing diagnosis of brain damage. His referral to the hospital was prompted by an episode of emotional outburst in his classroom during which the boy began to pull out his own hair. Since this episode climaxed a record of physical aggressiveness and maladaptive social behaviors, it had been suggested that the boy be institutionalized.

During the approximately two-week period that the boy remained as an in-patient, he served as a subject for a series of thirteen exploratory experimental sessions. Although the purpose of the experimentation was multiple, the three most prominent objectives were:

- 1) to test the effectiveness of an operant conditioning paradigm with a child who demonstrated a fair level of responsive language, but whose verbal productivity approached functional zero,
- 2) to explore the realm of reinforcement that might provide an effective way of 'getting a hold' on the S's behavior, toward the goal of shaping both response topographies, in the narrowest sense, and larger units of verbal behavior in the widest sense,
- 3) to subject to empirical test an analysis of verbal behavior that is oriented in terms of both function and form.

Observation of an evaluation session conducted by the hospital's speech therapist highlighted the following: the boy's responses to verbal instructions and requests were generally appropriate on the gross physical level, i.e. on request he would sit in a chair, pick up a picture book, turn the pages, move to different parts of the room, etc., following directions adequately. His responses on the verbal level, however, provided only faintly discernible approximations to spoken English. Utterances ranged from monosyllabic through trisyllabic, all marked by extreme pharyngeal tension, with the vowel in almost all cases being [ʌ], and each

syllable beginning and ending with a glottal stop. Where utterances could be described as being bisyllabic, the syllables were produced with prominently open juncture, e.g. [?ʌ? ʔʌ?]. The acoustic support for identification of 'bisyllabic' derives from the fact that differential stress was applied to the otherwise identical halves, and a suggestion of pitch variation from one syllable to the other.

There appeared to be no difference between the utterances elicited by a picture of a monkey, an elephant, or a lion. In all cases the utterance was [?ʌ? ʔʌ: ?]. (Sample 1)

In only a few cases was there coincidence between the number of syllables in the boy's response and the number in the word presumed to be said. The clearest example of this is found in the response to the command... 'Count for me.' The boy produced a series of six monosyllabic grunts, one bisyllabic grunt (for seven) and three monosyllabic grunts.

The procedure followed thereafter involved two major strategies. The first concerns the techniques of behavioral control to permit E to guide and direct the subject, and the second concerns the identification of behavioral targets.

Behavioral Control Techniques

As a first step in acquiring control over S's behavior, tokens were established as secondary reinforcers. These tokens could be exchanged for M & M-type candies at the end of the session by inserting them in a coin-operated candy dispensing machine. Every effort was made to maximize the number and the variety of reinforcing stimuli associated with the dispensing of tokens, the storage of tokens during the session, and their redemption at the end of the session for candy.

The tokens were dispensed by a conductor's coin dispenser (change-maker) which was mounted on an inclined board. When E pressed the dispensing lever, the machine made a distinctive noise as it ejected a washer. The washer slid, or rolled, down the inclined plane (providing both visual and acoustic stimulation) and landed with another distinctive noise at the bottom of the incline.

Additional apparatus used in the experimental room included a red plastic house, approximately 4" x 5" x 6", with a clear window on one side and a roof that could be raised. An assortment of small plastic figures, ranging from 1" to 3" in height, was employed, both as stimulus items, and a form of tactile and manip-

ulatory reinforcement. The figures included a woman, a man, a puppy, a pig, a sheep, a goat, and a hen (white plastic). In addition, a number of figures of horses and cowboys and hats in a variety of colors were used. The cowboys could be mounted on the horses and could be fitted with the hats. (See picture below.)

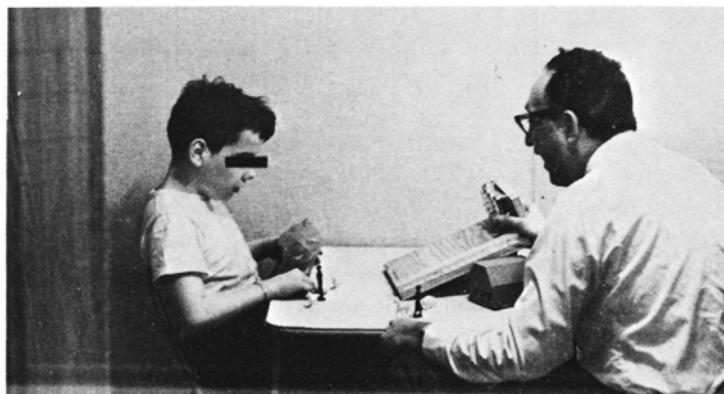


Figure 1

S was shown how to store his tokens in a clear plastic box. The box had a slot cut in the top of it for the insertion of the tokens. The S's name was printed on the box adjacent to the slot. Once the tokens had been inserted, S could see them and, if he chose, shake and rattle the tokens in the box. The top of the box was hinged, and could be easily opened by S for removal and redemption of the tokens at the end of the session, or as it sometimes happened, for the purpose of feeling and handling the tokens during a session. When this did occur, S would terminate his handling of the tokens by reinserting them in the slot.

At the very beginning of the session, the tokens were established as secondary reinforcers. E and S entered the therapy room together and E accompanied S to a table at the far end of the room on which stood the candy dispensing machine and the coin dispenser. S attended immediately to the candies visible through the clear plastic globe of the candy machine, but his attention was promptly distracted by the noise of the ejection of a token from the coin dispenser. E retrieved the coin from the trough, deposited it in the candy machine, and operated the lever, which was followed by a piece of candy falling into the cup at the base of the machine. E picked up the piece of candy and gave it to S who ate it. E then dispensed another token and deposited it

for what was essentially a repetition of the first step. A third token was dispensed and then handed to S who deposited it in the slot of the candy machine. Some help was required in the manipulation of the lever. S retrieved his own piece of candy from the cup and ate it. He then turned quickly to E and held out his hand. A fourth and final token was dispensed, handed to S, and used by him successfully for obtaining a piece of candy.

At this point E took the coin dispensing machine in one hand and led the S to a small table and chair set about ten feet across the room from the table on which stood the candy machine. As soon as S was seated, a token was dispensed. S attempted to rise from the table and take his token toward the candy machine but was told he would have a chance to exchange his tokens later. He was further told that the tokens could be stored in the plastic box. Shaping continued in this fashion with initial reinforcements being given for attending to E.

This general procedure for reinforcing S's behavior was followed throughout the remaining sessions with some modifications. Since the S was on a continuous reinforcement schedule,⁷ increases in his rate of output led to his acquiring as many as 130 tokens in one session. Since the consequences of a child eating 130 pieces of candy would not be desirable, a variety of other reinforcements was brought into play. At the end of a session, the subject could use his tokens in the candy machine until it was empty, but the candy machine had only ten pieces in it. The remainder of his tokens could be used to 'purchase' individual pieces of tinker-toy to be played with during a half-hour period at the end of the session. As his repertoire increased, some attempt was made to exploit the reinforcing properties of the toy figures that were used in the actual training. When he was able to say 'a pig', the clear plastic token storage box was replaced by a large red plastic piggy-bank. When his repertoire included such responses as 'a red horsie', 'a blue horsie', 'a cowboy', etc., he was permitted to 'purchase' plastic figurines that corresponded to what he could say. In effect, this led to a point in the session when tokens could be redeemed in the following way:

- What would you like to have, Michael?
- A red horsie.
- All right. That will be two tokens.

S would hand two tokens back to E, who would then deliver the selected object. The 'prices' for each object varied as a function of the number of tokens S had earned, the object being to achieve a balance between available objects and available tokens. At the

conclusion of a purchasing episode, he was permitted to utilize these figures as toys during his play period. At the conclusion of the play period, toys were returned to their storage can and the boy was returned to his ward.

Enthusiastic verbal reinforcement was frequently paired with the administration of tokens, and at later stages of the experiment was administered instead of the tokens. As the sessions acquired more of the character of dialogues between S and E, these verbal reinforcements functioned to sustain S's behavior.

Behavioral Targets⁸

The emphasis in the first session was on strengthening those behaviors that were considered antecedent to successful verbal behavior. The most prominent features selected for modification in this and subsequent sessions were those identified earlier as (1) extreme pharyngeal tension, (2) the beginning and ending of all syllables with glottal stop, and (3) the lack of closed juncture between syllables.

The strategy adopted for the modification of these behaviors was as follows: (1) Since the establishment of long, sung vowels is incompatible with the maintenance of extreme pharyngeal tension, a long, sung vowel was presented as a model and the S's imitation of this model was supported by chorusing. (Two types of modeling procedures were used throughout the entire series. The first, called 'chorus', consisted of E and S performing together, and the second, called 'echo', consisted of a model presented by E and repeated by S.) When S appeared to be making an approximation to the long, sung vowel under the support of the chorusing procedure, opportunity was given for simple echoing. Further variability in voice quality was approached by modeling whispered long vowels, over-loud long vowels, and loud-to-soft and soft-to-loud modulations in the same long, sung vowel.

(Sample 2) (2) The building of syllables that did not begin and end with glottal stops was approached again by presenting a model containing elements of incompatibility with the S's entering behavior. The basic syllable [ma] was chosen as the entering point for this change. The [m], for example, is a continuant and can be extended in length without unrealistic distortions, and further, the transition from the [m] to the [a] represents a relatively uncomplicated articulatory transition. It has the further advantage of involving the velum in inevitable, physiologically determined movements... movements which have very real consequences in .

vocal production. In the syllable [ma], e.g. it becomes impossible to start with a glottal stop. If the syllable is prolonged and sung, then the likelihood of ending with a glottal stop is considerably diminished. That is, a long [ma::::] that is sung on a falling contour with a decrease in loudness at the end of the syllable is likely to terminate with a gradual offset rather than with glottal stop. (Sample 3) Successful approximations of appropriate cessation of the syllable [ma] increase the likelihood of a successful closed juncture with a second syllable, in this case [mi]. The procedure that was followed was singing the syllable [ma::], followed by a sung and elongated syllable of [mi::], and increasing the proximity of the two syllables. Pains were taken to insure that the two syllables, when sung separately, still maintained the melodic characteristics of a two syllable falling contour. (Sample 4)

The two syllables referred to above were chained to produce the response 'mommy'. Following the successful production of an echoic 'mommy', the response of 'puppy' was established. The articulatory characteristics of this word are similar to those in 'mommy' with regard to glottal stop and problems of pharyngeal tension. These two 'words' at this stage of the experiment existed only as echoic responses.

As part of the general plan to increase the number of syllables emitted in one breath group, the chain of articulatory movements was extended by placing a schwa at the beginning of the chain of syllables. This yielded 'a mommy' [əmá:mi]. (Sample 5) Successful production of this chain of syllables yielded subject's first good approximation of an English phrase. The toy figures of a woman and a puppy were provided as referents, and an attempt was made to make them function as visual control stimuli for the phrases 'a mommy' and 'a puppy'. The behavior paradigm at this point yielded the following type of dialogue:

- What's this, Michael? (holding the figure of a woman)
- A mommy.
- What's this, Michael? (holding a puppy)
- A puppy.

In terms of control, we can see at this point that the subject's response is differentiated under the stimulus control of the properties of the figure and to some extent by the nature of the E's question. Functionally, S's responses here are tacts. (Skinner, 1957)

Two interesting considerations are raised at this point. As we indicated before, S initially approximated functional zero in pro-

ductive language. Another way of putting this is to say that spoken language had never served an operant function for him. His manipulation of the environment was restricted to gross physical means, and he had had very little success in directing and controlling other human behavior through his own verbal production. In spite of the limited repertoire available at this stage of the experiment, it was considered extremely important to give this boy his first clear control of another human being's behavior through his small verbal repertoire. It is interesting to observe how much control can indeed be exercised by such a child with such a repertoire when E structures the environment appropriately. For example, when the house and two figures are on the table in front of the child, E says:

- Tell me what to put in the house, Michael.

When Michael replies 'A puppy', the consequences of his verbal behavior are that a strange adult picks up the toy figure and puts it in the house. This may seem like a minute accomplishment, but the simple act of providing consequences to the child's verbal behavior constitutes a reinforcement that comes to replace tokens, candy, etc.

The second point raised here refers to the handling of the problem of 'meaning'. All of the S's responses had in common a simple non-differentiated function - that is, they controlled the administration of some reinforcement. Before these responses acquired specific, differentiated function (here considered 'meaning'), they were brought to some strength, with the primary concern being an acceptable topography. These responses were then structured in contexts where they could function in control of specific behaviors of either E or S. For example, following the point raised above, articulatory behavior was shaped to yield a fair approximation of 'I wanna'. After this was at strength, it was brought under the control of (as a response to) 'what do you want?' and chained to other high strength responses already under the control of the stimulus properties of the toy figures.

This leads to the dialogue:

- What do you want?...
- I wanna puppy...sheep...pig...horsie. (See picture on opposite page)

The conjunction of these two points led to one of the major milestones in the experiment. In the third session, E had an array of animals in front of him, and said to the S:

- Michael, tell me what you want.

Michael examined the animals in front of him and responded;



Figure 2

- I wanna puppy.

At this point E picked up the puppy, gave it to the boy, and said:

- All right. It's yours. You can keep it.

This was perhaps the first time that Michael had ever asked for something and received it. This stands in very sharp contrast to the direct physical means he had been limited to before.

By the seventh experimental session, the S's verbal control had been extended over a sufficient number of figures to permit the introduction of chaining in a conjunctive string. Beginning with two items, 'a mommy and a puppy', and leading to strings such as 'a sheep and a mommy and a hen and a puppy and a pig and a goat', the emission of a conjunctive string was generally under the control of:

(a) the question, 'What do you see?' or 'What's on the table?' in the presence of

(b) more than one figure on the table.

The strings were shaped by bringing to strength the response 'and a'. The objects were arranged on the table and in the beginning the naming of the figure was under the control of E's finger pointing to the figure. The response 'and a' was under the control of E's crossed index and middle fingers, pointing to the space between the two figures. Initial strings of three items involved E's pointing to the figure, the space, the figure, the space, the figure. In the session following the introduction of this procedure, the spatial arrangements of the figures came to control conjunctive strings without the introduction of the E's pointing and crossed fingers. (Sample 6) In the beginning, figures were named from

S's right to left. They were then subsequently named left to right and in scrambled array (i.e. non-linear), leading to the point at which S was shown the house that contained several figures and asked, 'What's in the house?' The stimulus of multiple figures itself came to control a response such as 'a mommy and a puppy and a sheep and a pig'. The number of items that could be chained when the chaining itself followed shaping procedures was not exhausted in the thirteen experimental sessions.

Tape sample 7 shows the shaping of the chaining of two responses already in the S's repertoire, but at low strength. 'I see' is chained to 'a cowboy'.⁹ The response is differentiated under the control of a cowboy figure. This chain was extended to yield sentences such as 'I see a sheep and a puppy and a hen'. Such sentences were extendable to the limits of S's naming repertoire, including such complex utterances as, 'I see a black horsie and a white horsie and a red pig.'

The extent of the verbal interaction between E and S that was reached in the thirteenth session precludes detailed elaboration. Some idea, however, of the magnitude of change can be had from contrasting the first session, which lasted twelve minutes and yielded 67 responses of a very primitive nature, with session thirteen, which lasted 55 minutes and yielded 220 responses.

While Michael's verbal behavior is still far from that of a typical ten-year old, the magnitude of difference between his entering behavior and that seen after thirteen experimental sessions is striking. (See Samples of Dialogue)

He has gone from a child who had almost no productive language, and consequently no socially mediated operant verbal behavior, to a point where he acquired control over a number of adults in the laboratory context. These limited, carefully directed behaviors, continued to function outside the laboratory. His verbal repertoires, both receptive and productive, appear to be growing rapidly. After his return home, Michael was shifted from his trainable, mentally retarded class, to an educable group, and is doing satisfactorily on the first grade level in arithmetic, reading, and music. The teacher reports that his speech is increasing in intelligibility, and that 'he is using phrases'. Most significantly, the teacher reports that Michael's verbal behavior is becoming less restricted to responding to others, and he has begun, by himself, to initiate verbal interchanges.

The issue of time is highly relevant, and it is important to bear in mind that the modifications in behavior described here are a consequence of an extremely short period - that is, the

amount of time actually spent with the subject totalled only about six hours, distributed over a period fourteen days. In the same vein, it should be borne in mind that the degree of control of the relevant aspects of the subject's environment was almost microscopic. The subject could, and did, obtain reinforcement outside the laboratory for a variety of old, maladaptive behaviors, whose strength was overwhelmingly higher than those newly established in the laboratory. Outside the laboratory, the child was exposed to a full spectrum of experiences, including both amateur and professional attempts at speech correction. This correction came from the nurses on the ward, nonprofessional custodial staff, and from the speech therapists on the hospital staff who offered instruction in reading, 'number concepts', and the building of vocabulary to add such items as 'portrait' and 'cabinet'.¹⁰

The relative strengths of nonverbal behaviors versus those acquired in the laboratory can be seen in terms of ten years of life experience versus six hours of training. That a degree of success under these circumstances was obtainable at all, suggests that even tiny periods of carefully planned, directed control, guided by experimental analysis, can lead to changes in behavior that are slowly, or never, brought about in a random, haphazard environment which frequently strengthens destructive, maladaptive behaviors that are incompatible with stated goals.

SUMMARY AND DISCUSSION

I have presented here a fairly detailed description of the application of operant conditioning procedures in the shaping of a degree of productive verbal behavior in a child who displayed a near total functional inadequacy, and demonstrated the consequences of these procedures. In addition to the obvious applications of techniques of behavior modification to cases of delayed, absent, or defective speech,¹¹ there are strong implications for the structuring and management of language instruction for:

1) Extremely young normal children. The implications here are for management procedures that will facilitate and accelerate the acquisition of operant verbal behavior.

2) Children whose language is regarded as inadequate for purposes of formal schooling by virtue of socio-cultural disadvantages. There is reason to suspect that language difficulties of disadvantaged children in a conventional school environment is related to functional deficits with regard to use of language, in

addition to the obvious dialectal deviations. The procedures described here are likely to be effective both in terms of modifying the operant function of such children's verbal behavior, as well as in effecting formal changes.

3) The teaching of foreign languages. Some progress has already been made in the application of operant conditioning principles in the field of foreign language learning, in the form of programmed instruction.

The discussion comes full circle here, for programmed instruction represents a direct application of the principles of the experimental analysis of behavior to traditionally recognized academic subjects.

It would be appropriate, then, to summarize today's presentation as a special case of the application of programmed instruction to the learning of English as a native language.

Acknowledgements

I want to acknowledge the valuable contributions made by several of my students to the analysis of the experimental sessions reported here. The tape recordings of each session were transcribed following a three-term contingency model, which required the transcription not only of the S's responses, but also the immediately preceding events (E's utterances and object presentations) and the nature of the consequences of S's response (both verbal and physical). As the sample tape shows, the transcription of the S's speech presents a difficult task for the phonetician.

Robert Reebek was primarily responsible for the phonetic transcription of the data, and shared with Dieter Blindert, Ronald Buddenhagen, and Vivian Horner in the elaboration of the contingency transcription model and the organization and analysis of the data. To them go my sincere thanks.

FOOTNOTES

- 1 One of the listeners can be, of course, himself. A variety of consequences of 'self-directed' verbal behavior is discussed in Skinner (1957), Vygotsky (1962), and Weir (1962).
- 2 It is in this area that the distinctions between 'learning' and 'teaching' become prominent. When we talk about 'learning', what we generally mean is that we have established in the environment certain contingencies for reinforcement, and we then can leave the organism alone to 'find out for himself' which

behaviors are reinforced, which punished, and which seem to have no consequences at all. When we say that a child has 'learned to be polite', we are saying that the child has 'found out for himself' that requests preceded by 'Please' are more likely to be granted than those that begin with 'Gimme'. Much that occurs in the natural environment is 'learned' in this way. Children learn how to open doors by turning the doorknob in a certain way. The contingencies for reinforcement... entering or leaving a room... are established by the mechanics of the doorknob. There are thousands of ineffective ways of touching the knob but only a few that will cause the door to open. If we were to seriously undertake rapid teaching of a child to open doors, our procedure would obviously not be to 'let him find out for himself' what are the appropriate behaviors.

Learning to understand the language of his environment has much in common with the kind of 'learning' described above. To say that children who are raised in an environment where language is used eventually 'learn' to understand the language is another way of saying that somehow, the child has 'found out by himself' what are the relevant aspects of his environment. It is the agglomeration of 'eventually', 'somehow', and 'found out' that accounts for much of the wide range of achievement in children of the same chronological age.

- 3 The ultimate absurdity of this position is represented by Miller (1964) when he declares that the inconsistent, unstructured, and haphazard exposure to language in the environment is both necessary and sufficient condition for children's language acquisition.

'Human language must be such that a child can acquire it. He acquires it, moreover, from parents who have no idea how to explain it to him. No careful schedule of rewards for correct or punishments for incorrect utterances is necessary. It is sufficient that the child be allowed to grow up naturally in an environment where language is used.'

The child's achievement seems all the more remarkable when we recall the speed with which he accomplishes it and the limitations of his intelligence in other respects. It is difficult to avoid an impression that infants are little machines specially designed by nature to perform this particular learning task.' One might be tolerant of Miller's journey into hyperbole considering how impressed he is with the child's great achievement in learning language under these conditions. What is unforgiveable is the implication that we have identified an area

of child development in which neglect and inattention represent desirable procedures.

- 4 See the Discussion section for further observations on this point.
- 5 For an insightful discussion of the relevance of diagnostic concerns, see Kerr, Meyerson and Michael, 'A Procedure for Shaping Vocalizations in a Mute Child' in Case Studies in Behavior Modification, Leonard P. Ullman and Leonard Krasner, editors; Holt, Rinehart and Winston, 1965. The volume is an extremely valuable one, and the list of references provides an excellent point of bibliographic departure for readings in this field.
- 6 See Krasner, Leonard, 'Studies in the Conditioning of Verbal Behavior', reprinted in Psycholinguistics - A Book of Readings, Saporta, Sol and Bastian, Jarvis, editors.
- 7 S was actually on a set of shifting schedules, eventually becoming a multiple concurrent schedule with a CRF component. In later stages tokens were given for longer units of behavior, verbal reinforcements for shorter units.
- 8 Of particular relevance to the linguist is the fact that although the description that follows is couched in behavioral terms, the sequence of behaviors is essentially what a well trained phonetician would be likely to follow if he were asked to plot the most direct articulatory route from the motor behaviors involved in the production of one sound to the next.
- 9 This sample is particularly interesting since it provides a clear demonstration of the process of chaining the elements of a full utterance. The target behavior is 'I see a cowboy'. In the process of reaching the terminal behavior, S produces almost every conceivable incorrect permutation of the elements of the 'words' as well as omissions. By both prompt reinforcement of the acceptable elements of his behavior (audible on the tape as the noise of the token dispenser and as verbal praise), and response blocking at intermediate points on the chain, the S is led to the terminal behavior.
- 10 These outside contacts frequently appear as interferences, rather than support. There is evidence that after 'I wanna' was established as an operant, the speech therapists attempted to 'correct the bad speech habits' the boy was learning in the laboratory. The results of this 'correction' appeared in subsequent sessions when the boy responded to the question, 'What do you want?' with 'I want-a-_____ ' [aj want ei _____] with marked open juncture between each 'word'. The strength

of the behaviors established and maintained in the laboratory was, however, sufficient to withstand these prescriptive efforts, and the exaggerated, separated orthographic pronunciations were rapidly extinguished.

As nearly as can be determined, the efforts of the speech therapists were directed toward what was viewed as a problem in articulation, with special reference to certain consonant sounds. He was characterized by the therapist as having 'no awareness of position of the oral musculature', and being unable 'to synthesize individual sounds given orally into words. For instance, given h-a-t, d-o-g, dr-e-ss, k-a-k, he will not be able to pull these three sound units together into a meaningful word.'

- 11 Mention of therapeutic applications leads me to underscore the following point. There is real danger, in the form of distressing, and perhaps tragic, consequences that 'authoritative' statements based on theoretical zeal will not only inhibit creative experimentation; but will misdirect the efforts of those concerned with the treatment of speech disorders. As to the consequences for experimentation, consider the case cited below. It will be particularly revealing to reflect on the issues of giving, rather than promising reinforcement, the reinforcement of successive approximations, and the notion of bringing nascent behaviors to strength.
- The case is reported by Lenneberg, who has written extensively on childhood language disorders, and who states with unequivocal certainty that 'Language "training" and acquisition cannot possibly be the result of rational preplanning because no adult "knows" how he generates new grammatical sentences.' (Italics mine.) (Lenneberg, 1964)

In the same paper Lenneberg reports experimental findings with a moderately brain-damaged boy of five who displayed 'an inability to vocalize upon command'. Nevertheless, 'When completely relaxed and absorbed in play, he was heard to make inarticulate sounds...'

'But the boy has never said a single word, nor has he ever used his voice to call someone's attention. I was once able, after considerable coaxing and promises of candy, to make him say 'ah' into a microphone of a tape recorder. The tape recorder had a voltmeter with a large pointer that would make excursions with each sound picked up by the microphone. The child had been fascinated by this, and had learned to make the pointer go through an excursion by clapping his hands. After

his first production of the sound 'ah', he was able to repeat the sound immediately afterwards, but when he came back the next day, he tried in vain to say 'ah' in spite of the fact that he seemed to be giving himself all the prompting he could think of, like holding the microphone in both hands and approaching it with his mouth as if to say 'ah'. (Italics mine) In the experiment just cited, the boy displayed what might be taken as a promising first step. That the promise was not pursued in the experiment, I consider lamentable. What is much more serious is the impact of such 'authoritative' reports on the researcher, the practitioner, and the patient in the treatment of speech and language disorders.

The image of a child assigned to a custodial institution because it is 'theoretically not possible to effect training in language' is profoundly distressing.

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Samples of Dialogue in Session Thirteen

Experimenter	Subject
What's this ?	A Mommy.
What else is there ?	A puppy and a Daddy.
What else ?	A goat
Tell me all the things you see on the table.	A horsie, and a Mommy, and a pig, and a puppy, and a Daddy, and a pig, and a goat, and a hen.
What've I got in my hand ?	Two red horsies.
What do you want ?	I want a horsie.
What do you want ?	I want a horsie.
What have you got ?	Two red horsies.
What have <u>I</u> got ?	Three white horsies.
How many horsies do you have all together ?	Three.
Now what have I got ?	A blue horsie.
Tell me what you want.	I want a blue horsie.
Do you know what this is ?	A car.
What kind of a car ?	A yellow car.
What's this ?	A white car.
How many cars are there on the table ?	Two.
Hey, who is this ?	A puppy.
What has the puppy got on his head ?	A yellow hat.
Look at the table and tell me what you want.	I want a horsie.
You didn't tell me which one you want.	I want a red horsie.
Where are you going to put the hat ?	On a man.

ON SO-CALLED 'PRONOUNS' IN ENGLISH

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A. Introduction

The following is an informal discussion of certain regularities in the syntactic behavior of forms traditionally called 'pronouns' in discussions of English syntax. By informal I mean that, although the analysis suggested involves a number of highly complex grammatical rules and a very special conception of the theory of grammar, no attempt has been made here to formulate or present any of the rules in their correct form. Nor is very much said about the theoretical assumptions these require. My aim is the much weaker one of trying to suggest that a class of facts requires that English grammar be formulated in such a way that it can contain such rules.

Our traditional lore about English grammar¹ recognizes a class of forms often called 'pronouns' or 'personal pronouns' which include I, we, you, he, she, it, they. At the start we may ignore for simplicity the various case forms us, your, him, etc., as well as reflexives, although these will become crucial later. Very often it was said that such forms 'stand for' or 'replace' or 'are substitutes for' previously mentioned or understood noun forms. Certain modern students of English such as Robert Allen² have noted, essentially correctly, that in many ways such forms actually 'replace' whole noun phrases (henceforth NP) rather than nouns, since they cannot occur with articles, relative phrases, and other elements which can occur in the same NP with ordinary nouns.

Compare:

(1) the young girl said that she would go
where on one reading she can be said to 'stand for' the whole NP
the young girl with:

(2) the large girl can't stand the small one
where one can only be said to 'stand for' the noun girl. However,
as I argue later, this contrast is a bit misleading since there is
reason to assume that the form one or its variants is also rele-
vant at one stage to the 'replacement' which occurs in sentences
like (1).

Early transformational descriptions of English have shown
that the vague and unclear traditional notion of 'stand for' can, in
its sentence internal³ meaning, be precisely formalized by trans-
formational derivation. Thus in a transformational grammar a
structure like:

(3) O'Hara is more intelligent than he seems to be
would be derived from a more abstract structure schematically
like:⁴

(4) O'Hara is more intelligent than O'Hara seems to be
However, obviously not all pronouns can be so derived, which
leads to a differentiation between transformationally introduced
pronominal structures and those introduced in the underlying or
basic forms, as in:

(5) he is sick

The fact that pronouns have two different origins can then be sug-
gested as the explanation for the ambiguity of reference of the
pronoun in sequences like:

(6) Schwartz claims he is sick

There is a great deal right in all this and no one who wishes to
discuss English pronouns can afford to ignore the insights and ob-
servations which underlie the kinds of descriptions just mentioned.
It is the thesis of this paper, however, that these analyses ignore
some important facts and that there is concomitantly a good deal
also wrong in them. Furthermore, what is wrong can be seen to
arise from the almost inevitable tendency in grammatical research
to assume wrongly that the surface or superficial syntactic forms
of sentences provide direct insight into (or are even identical with)
their deep syntactic forms.

B. The 'Article' Character of So-Called Pronouns

In a transformational grammar, each sentence and hence, deriv-
atively each part of each sentence has two distinct syntactic struct-

tures as part of its overall grammatical description; a highly abstract Deep structure relevant for semantic interpretation and a Surface structure relevant for phonetic interpretation. These two aspects of syntactic form are in general connected by a long and complex chain of transformational rules which, furthermore, derive a sequence of intermediate forms.⁵ In such a grammar it makes no sense to ask such traditional questions as: 'Is such and such occurrence of form F a noun?' It only makes sense to ask such questions contextually with respect to a specified structure. That is, one can ask whether such and such occurrence of a form F is a noun in the Deep structure, a noun in such and such intermediate structure, a noun in the Surface structure of the sentence, etc. The answer to some of these questions may be yes, to others no without contradiction. Furthermore and equally importantly, the fact that an element is present in the Surface form does not mean it was present in the Deep structure and, conversely, absence from the Surface form does not necessarily entail absence from the Deeper aspect of grammatical structure.

I mention all this only because it is fundamental to my basic claim which is that the so-called pronouns I, our, they, etc. are really articles, in fact types of definite article. However, article elements are only introduced as segments in intermediate syntactic structures. In the Deepest structures they are, I shall suggest, not present segmentally but are represented as syntactic features of nouns, features analogous to Animate, Human, Countable, etc.⁶ Rather deceptively, the articles which have traditionally been called pronouns are, as a result of certain transformational operations, in many cases assigned a derivative Noun status in Surface structures.

The evidence for this rather extreme set of assertions is complex, fragmentary, and involved with the analysis of a wide variety of different constructions in English. This greatly limits the possibility of providing a full justification here. I shall however attempt to sketch the reasoning involved and to present those facts which seem most significant. To start, we can easily determine that English NP, that is, the elements which function as subjects, objects, etc., must be categorized into definite vs. indefinite in order for their distributional possibilities to be described properly. In large part, but by no means completely, definite or indefinite status is indicated Superficially by a particular article. Thus the, this, that, these, those are definite, a/an, some, sm, and null⁷ are indefinite. However, proper nouns are definite even though in general they occur without explicit article. There are

exceptions, of course, including The Hague, The Bronx, as well as fairly productive instances such as names of ships, names of buildings, etc.⁸

Diagnostic environments for definite NP include special constructions with preposed adjectives illustrated by such sentences as:⁹

- (7)a big as the boy was, he couldn't lift it
- b big as Harry was, he couldn't lift it
- c big as that gorilla was, he couldn't lift it
- d *big as some giant was, he couldn't lift it
- e *big as a dog was, he couldn't lift it

Similarly, only definites occur as subjects in constructions like:

- (8)a Fido is John's
- b the house is John's
- c that car is John's
- d *soup is John's
- e *some dog is John's
- f *a car is John's

On the other hand, only indefinites occur in such contexts as:

- (9)a it was idiocy for Jack to leave
- b *it was the idiocy for Jack to leave
- c it was a scandal that Louis spoke
- d *it was that scandal that Louis spoke

Another diagnostic environment for indefinites is given by constructions with nonlocative, anticipatory there:¹⁰

- (10)a there's a book on the table
- b there's some object on the table
- c *there's John on the table
- d *there's this key on the table

But investigation shows that all of the so-called pronouns are thereby definite NP:

- (11)a big as I am, I couldn't lift it
- b big as they were, they couldn't lift it
- (12)a it is Billy's
- b they are Jack's
- (13)a *it was it for Jack to leave
- b *it was it that Louis spoke
- (14)a *there's me on the table
- b *there's you in the house

The definite character of NP containing so-called pronouns¹¹ is also shown by various prearticle constructions. Although we cannot go into this in detail, notice that such forms as which of, some of, all of, etc., occur only with following definites:¹²

- (15) a which of the men
 b some of the men
 c all of those cars
 d *which of some men
 e *all of cars

But they also occur with following so-called pronouns if these are plural:

- (16) a which of you
 b some of them
 c all of us

A similar argument holds for superlative phrases like:

- (17) a the best of these sheep
 b the tallest of the men here
 c the fairest of those maidens
 d *the best of some sheep
 e *the tallest of men here
 f *the fairest of sm maidens

which also show the definite character of the pronoun NP:

- (18) a the best of us
 b the tallest of you
 c the fairest of them

An important problem in constructing a grammar of English is, therefore, the following. Granting that in general the definite or indefinite character of an NP is indicated by its article, how is definite status to be assigned formally to NP based on the so-called pronouns? A possibility is to assume simply that the pronouns are a subclass of nouns which occur in Deep structures only with the nondemonstrative definite article the, which later drops by a transformational rule. Thus the underlying terminal structure of a sentence like I went would be schematically (the I went), where I is a noun and the its preceding definite article. This would eliminate the other exceptional fact of no article with pronouns at the cost of the transformational rule to account for the absence of the in the Surface structures. The apparent advantages increase if a similar analysis is proposed for proper nouns. Not a bad bargain perhaps but not an especially good one either.

Moreover, further facts strongly suggest that, while it is right to assume that more abstract NP structures of Superficial pronoun-containing NP involve definite articles, it is wrong to assume either that the articles are the or that at the relevant stage the pronouns are nouns. Most important in this regard are the reflexive forms such as those in:

- (19) a Horace washed himself

- b the girl washed herself
- c I washed myself

As has been argued by Lees and Klima,¹³ it is quite clear that reflexive elements must be derived transformationally from underlying NP which are identical to other preceding NP, this identity being subject to certain conditions. These have never been fully or exactly stated, but they concern occurrence of the two NP within the same simple sentence structure. This may be ignored here. Thus a sentence like (19)a must be derived from a more abstract, Deep structure of the sort schematically indicated: Horace washed Horace (subject of course to the remarks of footnote 4). In previous transformational descriptions, reflexive words such as myself, themselves, etc. have been treated as compounds of pronouns and a special, transformationally introduced by the very rule which carries out the reflexivization operation as determined by NP identity within simple sentence structures.

This analysis of reflexive forms will not do, however. The identity and simple sentence constraints are fundamentally correct and unquestioned here although they involve some mysterious and far from fully solved problems.¹⁴ But the treatment of the element self as a grammatical formative is untenable. In fact self must be taken to be a noun stem as we see clearly in such phrases as the expression of self in our society, selfish, selfless, etc. Compare piggish, brutish, boyish and witless, spineless, timeless, etc. Notice also the self/selvē plural alternation parallel to that in such unquestioned noun stems as wife/wive, life/live, etc. If, however, the stem self/selvē in reflexive words is a noun stem, what is the preceding element my, our, him, etc.? My answer is that they are, of course, articles, definite articles, in fact genitive type definite articles. I view the process of reflexivization as a complex of a number of partially independent operations, some of which are relevant for other grammatical developments such as nonreflexive pronominalization and, most crucially, determination of the Surface forms of so-called pronouns. The relevant rules include PRONOMINALIZATION, DEFINITIZATION, REFLEXIVIZATION, GENITIVIZATION, AND DEFINITE ARTICLE ATTACHMENT.

However, it will be impossible to understand these grammatical operations if it is not recognized that the terminal elements of Deep syntactic structures, i.e. the morphemes, are not unanalyzable atomic symbols. Rather, they are complexes of syntactic, phonological, and semantic features or properties. Phonology and

semantics do not concern us here. But the fact that underlying noun stems have a syntactic feature analysis is crucial. The features involved for English must, apparently, include such as Animate, Human, Masculine, First Person (I), Second Person (II), Third Person (III), Definite, Demonstrative, Proper, Pronoun (Pro), Reflexive, Genitive, etc. The claim is then that, instead of nouns cooccurring with article morphemes in Deep structures as in previous transformational and other treatments, Superficial structure article differences are represented at the most abstract level by differences in features of nouns, features like Definite, Demonstrative, and, as we see subsequently, also those involving person and gender properties.

The process of PRONOMINALIZATION is, I assume, a rule which specifies a noun stem as [+ Pro] if it is identical to some other noun in the same sentence, subject to appropriate and not entirely understood conditions. The rule of REFLEXIVIZATION is one which specifies a noun stem as [+Reflexive] and [+Pro] subject to its identity to another noun stem in the same simple sentence structure (at the point of REFLEXIVIZATION). All nouns start out in the Deep structure forms as [-Reflexive], i.e. the specification [+Reflexive] is only introduced transformationally.¹⁵ However, this is, as we have seen, not true of the feature specification [+Pro] which will be present in some noun bundles in the base, namely, in those underlying such Surface NP as someone, he, I, etc. in sentences like:

- (20) a someone saw bill
- b he is clever
- c I don't believe that

Similarly, DEFINITIZATION involves specifying a noun stem as [+Definite] (and generally but not always [-Demonstrative] as well) subject to certain conditions including previous transformational specification of [+Pro]. Under these assumptions, the overall processes of reflexivization which occur in sentences like

- (21) a boy hurt himself

and pronominalization which occur in sentences like:

- (22) a boy said he would help

are considered to be quite similar. Both involve specification of the repeated noun as [+Pro, +Definite, -Demonstrative]. The difference is whether or not the specification [+Reflexive] is also assigned.

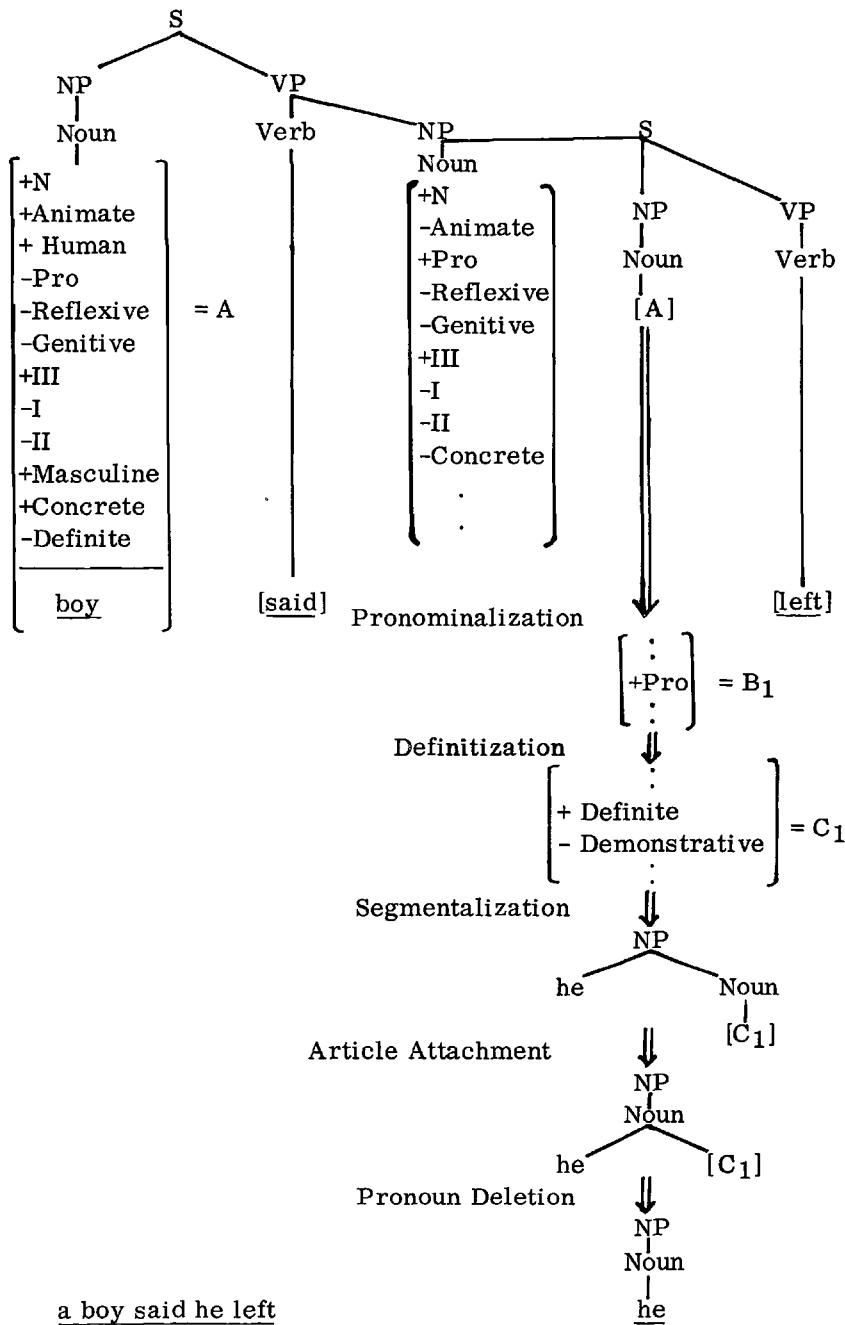
A crucial assumption is then that there is a relatively late transformational rule in the grammar which adds certain terminal segments, the traditional articles and now also the definite pronouns

I, him, your, etc., to NP which previously contained no such segmental elements. The phonological form of the particular article is determined by the features of the head noun stem, these features themselves being partly inherent and determined by the base rules and lexicon which generate Deep structures but often partly derivative and determined by previous transformational rules such as PRONOMINALIZATION, REFLEXIVIZATION, and DEFINITIZATION. We might call the kinds of rules of which the article insertion rule is an instance SEGMENTALIZATIONS.

These are rules which insert segmental elements into phrase markers on the basis of syntactic feature specifications present at earlier, more abstract stages of derivations. It is a difficult and interesting question exactly how such rules should be characterized. I shall not go into this here.¹⁶

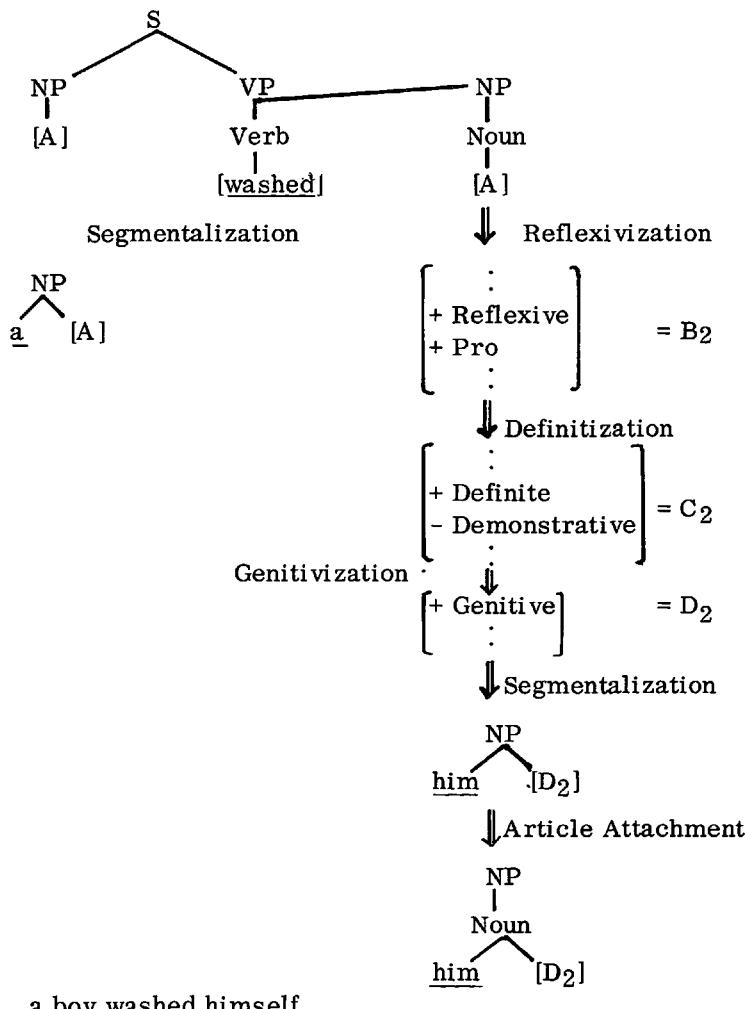
The kind of derivations I am assuming can be illustrated rather schematically and with many oversimplifications. In Figure 1 I sketch the development of the Surface form a boy said he left on the analysis where he refers to a boy. As can be seen, the underlying subject noun of the verb left of the embedded sentence is identical to that of the subject noun of the sentence as a whole. This would normally determine an indefinite article for the subject of left by virtue of SEGMENTALIZATION. However, the PRONOMINALIZATION and DEFINITIZATION rules turn this noun [+ Pro, + Definite, - Demonstrative] before SEGMENTALIZATION applies. Therefore SEGMENTALIZATION determines a definite article. Furthermore, since the noun is at this stage [+ Pro, + Human, + Masculine, + III, - II, - I, + Nominative, - Genitive] and since no restrictive relative is present the relevant article is he.¹⁷ I assume here of course that there exist rules which mark nouns with case properties [+ Nominative], [+ Genitive] etc. before SEGMENTALIZATION applies. These specifications are predictable from context but we shall not be able to consider their assignment here. ARTICLE ATTACHMENT is the rule designed to account for the fact that himself, myself, etc. are single words unlike ordinary article + noun combinations.¹⁸ I assume that this rule works also for nonreflexive pronouns (notice that this is the simplest assumption since it permits statement of the relevant feature context as [+ Pro] rather than [+ Pro, + Reflexive]). It is this rule which then largely accounts for the 'deceptive' derived Noun status of so-called pronouns. Later we shall give some evidence for assuming that ARTICLE ATTACHMENT works in nonreflexive cases.

Figure 1



In Figure 2 I indicate the derivation of a reflexive form.

Figure 2



The derivation is parallel to that of the nonreflexive element in Figure 1 except that the feature [+Reflexive] is specified as well as [+Pro] because the NP identity is within a simple sentence structure. This determines the operation of REFLEXIVIZATION instead of PRONOMINALIZATION. Furthermore, [+Reflexive] triggers addition of the feature [+Genitive]. There are, of course, many other origins for [+Genitive], all of them transformational.

That is, all noun structures start off in the Deep Structures as [-Genitive]. There is, however, an important additional difference and it is this which has disguised the relationship between ordinary so-called pronouns and reflexive words.

Nothing in our analysis thus far accounts for the difference between the terminal two morpheme structure of reflexive words and the single formative character of nonreflexive pronominals. That is, what we have said would suggest that the output NP in Figure 1 should be heone. This is not the case here nor is the actual phonological form of the pronoun ever present in analogous forms in the standard language. We can only assume, therefore, the existence of a special rule to drop the nonreflexive pronoun stems in such cases. This is the rule called PRONOUN DELETION in Figure 1. Although this seems a bit ad hoc, it in fact provides the basis for an interesting and important justification for the posited analysis which we shall give in the next section. I am definitely claiming, however, that were it not for this highly restricted and low level rule our so-called pronouns would in fact have the terminal forms *Ione, *usones, *herone, *itone (or perhaps better *itthing analogous to the indefinite *something). This should make clear why I said earlier that the contrast pointed out by Allen between pronominals like he, she, it, etc., which replace whole NP, and pronouns like one, which replace individual nouns, is misleading in part. For in fact I claim that the pronoun which would be pronounced one, thing, etc. is also really present in the so-called pronominal cases as well. Further very strong evidence of this will be presented below.

I am assuming, of course, that when transformational rules mark a noun with features like [+Pro], [+Reflexive], etc. that this may trigger subsequent effects not only on article form but also in general determines the phonological form of the noun stem itself. In other words, when a noun is marked [+Reflexive] its phonological matrix must be changed from whatever it was originally (for example, that we write boy, lady, car, goat, etc.) to self/selve depending on [-Singular] [+Singular].¹⁹ Similarly, specification of a noun as [+Genitive] will in regular cases have effects on it leading to the suffix written 's'.²⁰

C. Justification for the Analysis of the So-Called Pronouns as Articles

In the previous sections we have outlined an account of forms like I, us, their, etc. whereby they are treated as forms of definite article. In our terms this means that they are segments

added to NP whose head nouns are [+Definite]. The contrasts among the various definite articles are due to other contrasting features of the head noun. The major motivation of this analysis thus far is the parallelism with respect to properties like Animate, Masculine, I, II, III, etc. between he/him and himself, it and it-self, I/me/my and myself, etc. Once it is recognized that the reflexives consist of something plus a noun stem and that this something differs from the forms of pronouns only in case properties (Genitive and Nominative values), it is quite natural to assume that pronominalization and reflexivization involve specifying a noun as [+Pro, +Definite, -Demonstrative] and that these along with the inherent features of the noun then determine the form of the article. Hence by parallelism with himself we are led to regard him as an article whose underlying head noun (which would otherwise show up phonologically as one) has been deleted because it was [+Pro] either inherently or derivatively by identity. While perhaps not completely implausible, thus far we have certainly given little conclusive ground for accepting such an analysis. Basically it has been shown only that it is possible and that it provides a natural way of handling the definiteness of nonderivative pronouns like I, him, you and shape parallelisms between these and derivative pronoun forms of the reflexive and nonreflexive varieties. And furthermore the analysis is compatible with the hitherto ignored fact that self/selvē is a noun stem. More serious evidence in favor of the article analysis is, however, available.

It should be emphasized that the analysis accounts for an otherwise unexplained gap in the NP system with respect to the concurrence of third person pronouns, definite articles, and restrictive relative phrases. One finds real pronouns actually occurring with the definite article the if there is a restrictive relative phrase or one of its reduced variants present in the NP:

- (23) a I met the one who Lucille divorced
- b I met the man who Lucille divorced
- (24) a I ate the one Schwartz gave me
- b I ate the apple Schwartz gave me
- (25) a I bred the small one
- b I bred the small lion

but without the restrictives, reduced or not, the pronoun form one cannot so occur:

- (26) a *I met the one
- b I met the man

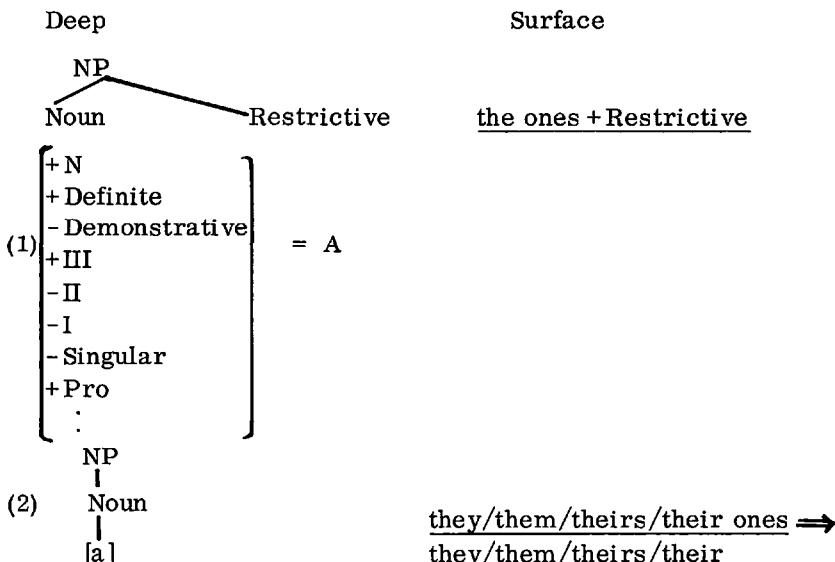
- (27) a *I ate the one
 b I ate the apple
 (28) a *I bred the one
 b I bred the lion

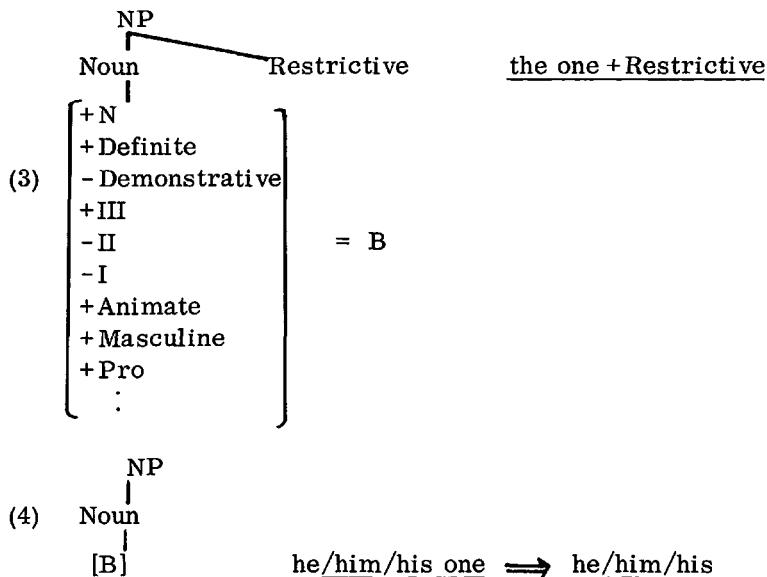
Notice that the analogues with the indefinite article are alright regardless of whether the head noun is [+Pro] or not:

- (29) a I met someone
 b I met some man
 (30) a I ate something
 b I ate some apple
 (31) a I bred something
 b I bred some lion

My suggestion is that the gap left by the definite, nondemonstrative form with [+Pro] head absences in (26) - (28) is actually filled by the so-called pronoun forms, or, more precisely, by that subset which are third person. That is, the so-called third person pronouns, it, he, her, them, etc. are exactly the articles assigned to nouns containing the features [+Pro, +Definite, -Demonstrative, +III, -II, -I] in the absence of restrictive relative phrases in the relevant NP. This simultaneously explains the failure of the so-called third person pronouns to occur with restrictive relative phrases or their reductions.²¹ Schematically what I am claiming is:

Figure 3





An important issue looms of course, an issue which relates to a general failure to discuss the way underlying feature specifications are assigned or how the many restrictions among their possible combinations may be stated. In particular, there is only one form of nondemonstrative definite article, namely, the, which occurs with a pronoun that has a restrictive relative (with nonfirst or second persons, see below). But under the present analysis there is a whole contrastive set of nondemonstrative definite articles occurring with the pronouns without restrictives, at least in the singular, namely, he, she, it and their case forms. This means that a set of feature distinctions including those of gender and sex are superficially marked in the definite articles of pronouns without restrictive relatives but not in those of pronouns with restrictives or in those of nouns which are not [+Pro] regardless of restrictive occurrence. The first question is whether it is right to assume the underlying distinctions exist even when they yield only the noncontrasting form the. In fact, there is good reason to assume that these distinctions are present in the underlying forms in such cases. This follows, for example, from the fact that all relevant types of reflexives are possible:

- (32) a the one who I saw behaved himself
- b the one who I saw behaved herself
- c the one which I saw behaved itself

In order to maintain the generalization that reflexivization is a

function of NP identity, it is necessary to assume that the underlying pronouns in these cases contrast in features like Animate, Masculine, etc. Hence in purely third person cases it is not necessary to restrict contrasting underlying features to pronouns without restrictives. It is rather to be taken as a minor, more or less morphophonemic fact that we do not say things like *he boy, *she girl who I like, etc. instead of the actual forms with the neutralized the.

However, in this discussion of underlying features for pronouns we have ignored the question of features like I and II. But these involve some of the most important problems and provide some of the most significant evidence for our analysis. One's initial impression is that, under the assumptions which have been made here, it will be necessary to restrict underlying feature specifications [+I] and [+II] in such a way that they occur only in nouns which are [+Pro] and only in nouns which do not have restrictive relatives. This will be necessary to prevent such impossible elements as *I boy, *you person, *you girl who Jack loves, etc., allowing only abstract Ione, youone, weones, youones, which become actual Surface I, you, and me. However, although there are real restrictions here, the just given statement of them is certainly wrong, or rather too general. For it is fundamental to the present analysis that, in the plural, nonthird person elements can occur with both nonpronouns and/or restrictive relative phrases.

The first forms relevant to this claim are those such as we men, you guys, etc. which we take to be cases of [- Pro, +II...]. Jespersen, who of course noticed such forms,²² implied in effect that they were derivatives from appositive relative clauses. In transformational terms this would naturally suggest derivations like, schematically: we, who are men \Rightarrow we men; you who are children \Rightarrow you children. If this solution could be maintained, it would obviate taking we and you to be articles in such phrases as is insisted here. But in fact this proposal of appositive derivation cannot be right since forms like we men, etc. occur in a variety of contexts where appositive relatives may not. Thus, for example, Smith²⁵ has noted that NP which are the objects in questions may not have appositive relatives:

(33) a *did you see Bill, who is six feet tall

b *who wrote a novel, which was published by McGraw Hill
And as she also observed there are negative contexts which exclude appositive clauses:

(34) a *he didn't eat the mango, which I bought for him yesterday

b *he didn't write a novel, which was banned as obscene
 Similarly, other negative contexts exclude appositives:

- (35) a *no American, who was wise, remained in the country
 b *none of the cars, which were Chevrolets, were any
 good

c *they never insulted the men, who were democrats

But the forms like you guys occur in all such appositive-excluding environments:

- (36) a did you see us guys
 b who insulted you men
 c he didn't like us Americans
 d he did not insult you Communists
 e none of you guys are any good
 f neither of us professors is quitting
 g they never agreed with us planners

Furthermore, there are other grounds for doubting the appositive analysis. Notice that the final relative phrase in such pre-article constructions as:

- (37) that one of the men who is sick

is really associated with the first noun one, as shown by the agreement with sick. There must therefore be a rule to shift it over the following structure to the end. In nonpronoun NP this following structure can include article, prenominal modifiers, and postnominal modifiers:

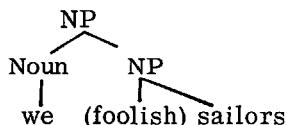
- (38) a that one of the tall men who is sick
 b that one of the men here who is sick
 c that one of the men who I like who is sick

Observe, however, that the same relative shift rule must operate in pronoun-containing NP:

- (39) a that one of us who lives here
 b that one of you guys who betrayed me
 c that one of you foolish soldiers who deserted his post

Under the analysis suggested here, where we, us, you, etc. are articles, the structure over which the relative must shift in (39) is exactly the same as that in (38). But under the appositive analysis the structure would necessarily be radically different, complicating the shift rule, since the derived structure of elements like we men, you foolish sailors, etc. would have to be rather like:

Figure 4



Finally, Jespersen to the contrary notwithstanding, the appositive derivation would assign the wrong interpretation since in fact such phrases do not have appositive meanings, at least not always. This is shown clearly by such examples as:

- (40) a you troops will embark but the other troops will remain
- b lets us three men leave first

which are certainly not paraphrases of:

- (41) a you, who are troops, will embark but the other troops will remain
- b *lets us, who are three men, leave first; lets us three, who are men, leave first

The fact that (41)b is, in addition ungrammatical is further evidence of the inadequacy of an appositive derivation for such forms.

It seems clear then that the only conclusion is that such Surface NP as we men, etc. must be derived from underlying nouns which are [+Pro] and yet contain [+I] or [+II] specifications. Hence in such sequences we actually find the so-called pronouns we/us and you as articles in Surface structures. And this is among the strongest evidence for our overall claim that so-called pronouns have essentially the same type of derivation and status as traditionally recognized definite articles.

Having shown that in the plural first and second person forms can occur with ordinary nouns, we can turn to the question of their occurrence with restrictive relatives. And here also we find a contrast with the situation in the singular. For in fact such phrases as:

- (42) a you men who wish to escape
- b we Americans who have been struggling here

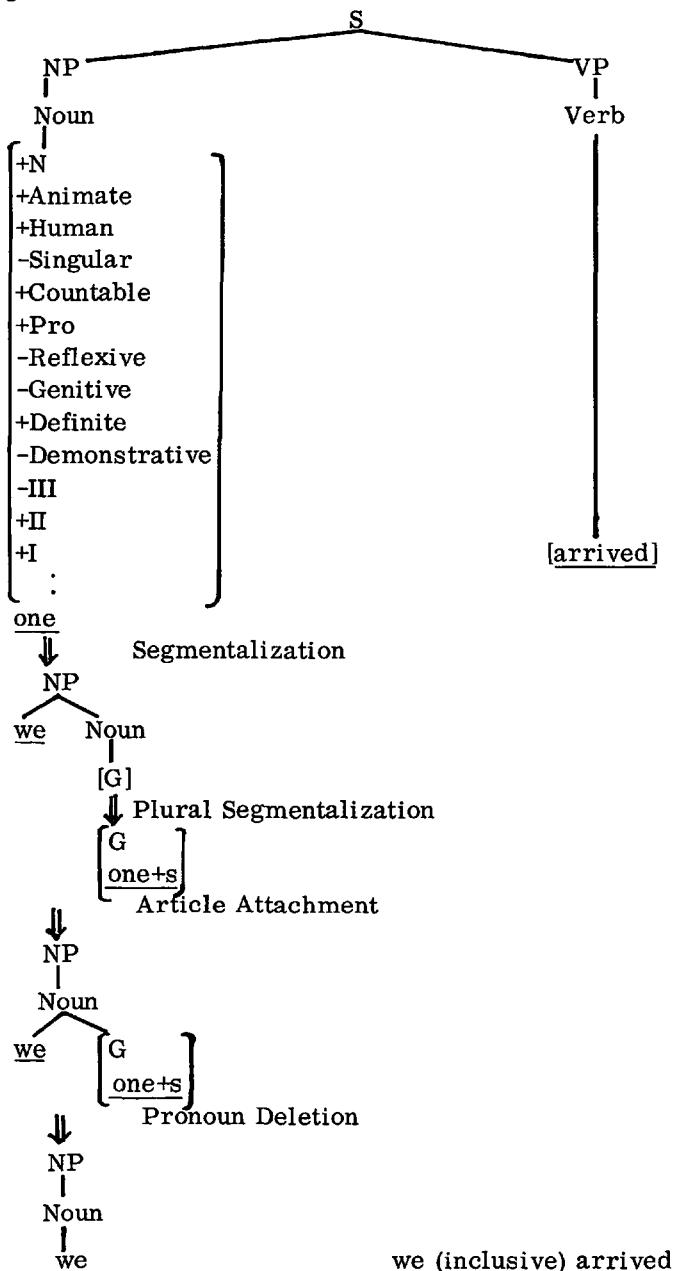
seem perfectly natural. And this is even more true when the restrictives are reduced:

- (43) a you men here
- b we honest policemen
- c you amusing comedians
- d you diligent Democrats shouldn't put up with lazy ones
- e Johnas didn't criticize us intelligent workers, only the dumb ones

The occurrence of first and second person forms in the plural with restrictive relatives and their reductions leads to a significant justification for the claim that the so-called pronouns are articles and, in particular, for the claim that for standard English a more abstract set of forms Ione, heone, weones, themones, etc. underly the Surface elements I, he, we, them, etc. We illustrate a relevant derivation for the we case (on one analysis). I claim that

we is in general ambiguous. Cf. below) in Figure 5.

Figure 5



Most striking is the fact that the hypothetical pronoun stem one actually shows up in Surface structures in such forms as:

- (44) a you great ones
- b us quieter ones
- c we religious ones

We take these to have structures exactly analogous to those of you important men, we diligent Democrats, etc., except that the head noun is [+Pro], and analogous to the structure in Figure 5 except for the presence of a restrictive relative. It is the reduction of this relative and the preposing of the remaining adjective which then evidently prevents the attachment of the articles you, us, we to the following noun and subsequent deletion of the pronoun stem + plural ending. It may be objected that this analysis is dubious because only the forms with reduced relatives are possible. But in fact, for the present writer at least, unreduced relatives in such cases are possible although with them attachment and deletion occur:

- (45) a we who are opposing Fascism disagree with those of
 you who are not

b you who wish to survive had better shape up

This indicates that the rule of ARTICLE ATTACHMENT only takes place when the article is contiguous to the stem. This conclusion is supported further by forms like:

- (46) a we here oppose such a move
- b you on the East side have no problems

where attachment and deletion must be assumed with reduced relatives because they are not preposed.

Jespersen, who noticed examples like (44) had the following to say:²⁴

'Ones may be used after a personal pronoun in the plural. This is not astonishing when an adjective intervenes (as in you great ones above... or... it is very annoying to us quieter ones); but it is more difficult to see why ones should have been added to a single we or you. This is found in Scotch dialect..., and it is evidently from Scotch that American has taken it. We'uns and you'uns are especially frequent in the vulgar speech of the Southern states...'

Jespersen obviously recognizes the problem which such forms as (44) cause for a view which treats we, you, etc. as pronouns. His remark that the occurrence of a following noun is not astonishing when an adjective intervenes is defensive. Why is it not astonishing? But even more, the view falls apart completely when faced with the dialect forms we'uns, us'uns, you'uns, etc. The

latter provide one of the most crucial justifications for our analysis. For they illustrate a case where the hypothetical forms weones, youones, etc. actually are related to pronunciation without the ad hoc rule of nonreflexive pronoun stem deletion which must be posited for the standard language.²⁵ In comparison to Jespersen's puzzlement, the analysis suggested in this paper provides a natural treatment of such forms. For such dialects as contain us'uns, etc. my claim would be that the underlying forms and most of the rules are identical to those suggested here for the standard language. But in these lower class systems the rule which drops nonreflexive pronoun stems after attached definite articles is, at least in first and second person cases,²⁶ restricted to the singular and does not work for both singular and plural as in the standard language.²⁷

In this analysis of first and second person articles we, you, etc. in their occurrences with nonpronouns and restrictives, we have, of course, uncovered differential behavior of the ARTICLE ATTACHMENT RULE. If the noun stem is [+I] or [+II] the article attaches to a following noun which is [+Pro] if nothing intervenes even if there is a following restrictive, reduced or not. But in cases where the noun is both [-I] and [-II] attachment only occurs when there is no restrictive. Thus one finds (47)a, b, and c and not the analogues to (45):

- (47)a the one who she married
- b the one who he married
- c the one which I ate
- d *he who she married
- e *she who he married
- f *it which I ate

I have not indicated how the base rules may be formulated to account for the underlying constraints on combinations of feature specifications in nouns or restrictions between these and external elements such as restrictive relatives. Nor shall I do this here. It should be said, however, that variants of the feature apparatus suggested by Chomsky in Aspects seem adequate to do the job, i.e. to specify that in the singular [+I] and [+II] are incompatible with each other and with [-Pro] and restrictive relatives while none of these is true in the plural. Although I cannot go into these matters in detail here, I would like to briefly indicate the kinds of underlying feature bundles which I think must exist and to briefly justify the use of three person features, I, II, and III which have been implicit in the discussion thus far. In particular, it is important to indicate why we do not simply take first and second persons to be opposite values of one feature.

Given three features of two values there are eight possible combinations. And in the plural in fact six of these occur:

$\begin{bmatrix} +\text{III} \\ +\text{II} \\ +\text{I} \end{bmatrix}$	$\begin{bmatrix} +\text{III} \\ +\text{II} \\ -\text{I} \end{bmatrix}$	$\begin{bmatrix} +\text{III} \\ -\text{II} \\ -\text{I} \end{bmatrix}$	$\begin{bmatrix} +\text{III} \\ -\text{II} \\ +\text{I} \end{bmatrix}$	$\begin{bmatrix} -\text{III} \\ -\text{II} \\ -\text{I} \end{bmatrix}$	$\begin{bmatrix} -\text{III} \\ -\text{II} \\ +\text{I} \end{bmatrix}$	$\begin{bmatrix} -\text{III} \\ +\text{II} \\ +\text{I} \end{bmatrix}$	$\begin{bmatrix} -\text{III} \\ +\text{II} \\ -\text{I} \end{bmatrix}$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Only the combinations (5) and (6) are impossible in the plural. (1) is, for example, the analysis of the reflexive form in:

(48) you and I and John can't perjure ourselves

(2) is the analysis of the reflexive in:

(49) you and John shouldn't bother yourselves about it

(3) is of course the analysis of all so-called third person forms.

(7) is the inclusive we and (4) is the exclusive we. Notice that only the former occurs in the environment after let's.

In the singular, on the other hand, only three of the eight possibilities are possible, namely, those in which one of the three features has a plus value and the other two minus values. But since more than four exist in the plural it is clear that two features will not suffice. It should be emphasized that in these analyses I agree very much with Long (*op. cit.* 338), who insists that we is not the plural of I in the same sense in which boys is the plural of boy. That is, in our terms none of the three possible combinations of features which yields the article we differ from the combination which yields the article I only in the value of the feature Singular. Features II and III necessarily have different values as well and the feature Pro may also differ since we can occur with nonpronouns while I cannot.

An important justification for the three feature analysis of person properties is that it provides an important part of the basis for giving a general characterization of the first person-second person interchange in questions and answers. Given feature analyses like those suggested above, the condition is simply that if the values of the features I and II do not agree in any noun form of the question, the 'corresponding' forms in the answer must have the opposite values for each. Thus did you (singular) eat yet where the underlying subject noun is $[-\text{I}, +\text{II}]$ must be answered yes I ate already where the underlying noun is $[+\text{I}, -\text{II}]$. The question did you (plural) leave must be answered yes we left in which the underlying noun is $[+\text{I}, -\text{II}]$, i.e. the we is understood as exclusive. But we can also answer questions which contain we. do we have 10 dollars; yes we do. This is possible because the question noun

has the specification [+I, +II...], i.e. is inclusive, and does not meet the oppositeness condition requiring a switch in the answer. That we questions may also take you answers follows from the fact that some we are [+I, -II], i.e. exclusive. These facts of question-answer first and second person relations are thus good evidence of the ambiguity of English we NP. Obviously these question-answer facts discussed here are not really special to English but again involve universal features of language which must ultimately be built into any correct linguistic theory. That this means features like I, II, III, Pro, etc. must be universals is simply a further confirmation since this seems clear on many other grounds.

There is one final minor argument in favor of the claim that the traditional personal pronouns are actually forms of definite article. Morphophonemically voicing is essentially predictable in dental, nonstrident continuants, i.e. there is no real [θ] - [d] contrast in English. In particular, voicing may be predicted in such elements in articles, the, this, that, these, those, and in so-called pronouns, they, them, their, theirs (not too long ago one could of course have added thee, thy, thine, thou). But by assuming that pronouns are articles, these two environments are reduced to one. Analysis of generally so-called adverbial elements also suggests that forms like then, there, thus actually have the structure definite article + certain types of pronoun²⁸ so that the same environment covers these as well.

Having mentioned phonology, I can conclude by observing that an analysis like that proposed here for English is to me even more obvious for languages like German and Spanish where, for example, the respective pronoun-definite article similarities between er-der, sie-die and el-el, ella-la are evidently no accidents. But I leave it for those who know these languages better than I to consider the possibility of such analyses.

FOOTNOTES

- 1 Cf. for example O. Jespersen, A Modern English Grammar, Part VII, 125-6; G. O. Curme, A Grammar of the English Language, Vol. III, 557; R. B. Long, The Sentence and Its Parts, 338-356.
- 2 In a paper read to the Linguistic Society of America several years ago.
- 3 I would argue that there is really no other meaning. The idea that a form like she in sentences such as she dances well is a

'replacement' or 'substitute' for some other noun, say in 'discourse contexts' or the like, seems to me completely without basis. Such an assumption explains nothing for the quite simple reason that there is nothing really to explain. It is quite sufficient to indicate precisely that such forms refer to object-types whose particular referents are assumed by the speaker to be known to the person spoken to.

- 4 It is crucial, however, that linguistic theory provide for an indexing of lexical elements. For grammars keep track of whether two or more occurrences of the same lexical item in the Deep structure of a single sentence refer to the same entities or not. Thus the underlying structures of Otis convinced Otis and Otis convinced himself differ only in that the indices of the two items are identical in the latter case but not in the former. When one speaks of identity in a transformational grammar, as we shall informally below, it is necessary to include index identity. It seems natural to take the indices to be simply numbers which are assigned to any lexical item when it is taken from the dictionary and inserted in a Deep structure. For further discussion of this question of indexing cf. N. Chomsky, Aspects of the Theory of Syntax, 145-6; Postal 'A Note on "Understood Transitivity"', IJAL, 32. 91-2.
- 5 For latest published discussion of this theory in its most recent formulation, cf. Chomsky, Aspects.
- 6 The introduction of syntactic features into linguistic theory is discussed at length in Chomsky, Aspects.
- 7 sm is the way I shall write here and below the form which occurs in such contexts as I would like applesauce, a form entirely different from that occurring in contexts like maniac is outside. The null form of the indefinite article occurs with mass nouns like blood, soup, rice, etc., plural nouns like cars, and certain unaccountable abstracts like truth, happiness, etc.
- 8 It is easy to show by the criteria to be given below that genitive expressions like Schwartz's nostril, Sam's horse, etc. are definite. This follows, however, from the fact that such forms are derived from more abstract (but not the most abstract, which involve restrictive relative phrases) structures *the nostril of Schwartz's, *the horse of Sam's, etc. Evidence for this is given by the article gap with the in the otherwise complete paradigm: a horse of Sam's, some horse of Sam's, this horse of Sam's, that horse of Sam's, these horses of Sam's, those horses of Sam's and by the cooccurrence of preposed genitives

with superlatives, otherwise restricted to the definite article: the oldest horse, Sam's oldest horse, *an oldest horse, *this oldest horse, etc.

- 9 It might be objected that indefinites may occur in this context counter to our claim because of such forms as: expensive as butter is, I still prefer it; strong as gorillas are, they can't outwrestle Superman; cold as a glacier is, it is still not as cold as outer space; etc. However, it will be observed that in all of these cases the Superficially indefinite NP must be interpreted generically. This very much suggests that one recognizes Generic as a syntactic categorization of nouns and insists that [+Generic]nouns are [+Definite]. Later rules may then switch some generic NP to Surface indefinites. As support of this approach, one can note that while definite articles can occur in contexts like (7) with restrictive relatives, this is impossible for these apparent indefinites, a function of the general incompatibility of generic and restrictive: *expensive as butter which I bought yesterday was...; *strong as gorillas who live in Africa are.... The existence of indefinites with adjectives complicates the matter but does not remove the basic point: rare as good bourbon is...; strong as big men are. That is, if we treat the apparent counterexamples as generics which later turn indefinite, which is in accord with their semantic interpretation, we account for the failure of indefinite + ordinary restrictive to occur here. On the other hand, if one treats the occurring indefinites in the Surface forms as instances of Deep indefinites, the nonoccurrence of the restrictives with indefinites is inexplicable and ad hoc since definites do not exclude ordinary restrictives here: big as the man who I saw yesterday was. Such facts seem to me to suggest very strongly that the indefinite examples not be taken as counterexamples to the claim of definiteness in contexts like (7) but only as proof that it is Deep structure and not Surface structure definiteness which is relevant.
- 10 In the commentary after the oral presentation it was objected that definite forms can be found in these contexts. The evidence was examples like there's this guy up here..., etc. But this is a confusion since although these forms exist they are not instances of the construction I was illustrating. Notice, for example, that they answer different questions. Thus if asked what is there on the table one can reply there's some object on the table but not there's this guy on the table. Moreover, notice that in the so-called counterexamples the this is

not understood as the definite, demonstrative element, but rather as some kind of indefinite. While I do not understand this fact, it certainly shows that such forms do not conflict with any claim of indefiniteness.

- 11 Paul Roberts, English Syntax alternate edition, 14-17 argues, in effect, that the so-called personal pronouns occur with such indefinite mass and plural NP as butter, chickens, etc. However, on page 27 he himself gives part of the evidence showing that this is a mistake. He observes that pronouns occur with prearticle forms several of, many of, etc. but takes this only to show the contrast between pronouns and proper nouns. But obviously it also shows a contrast between pronouns and those mass and plural NP which do in fact have the null form of the indefinite article: several of us, many of them, *many of chickens. One can only get many chickens since the of is preserved here only with definites: many of the chickens, many of those artists, etc. Everything said in the rest of this paper is further argument against the assumption of a syntactically indefinite character for pronoun-containing NP. The semantically definite character of such NP needs no stress although under Roberts' analysis this is an accident, i.e. not a function of the syntactically definite property which yields semantic definiteness in other forms.

- 12 This is really only a fact about Surface forms. Such elements do occur with following indefinite plural nouns in Deep structures but deletion and reduction take place. Schematically:

$$\begin{array}{l} \text{which car of Definite cars} \Rightarrow \text{which one of } \left\{ \begin{array}{c} \text{the} \\ \text{these} \\ \text{those} \end{array} \right\} \text{cars} \\ \text{which car of Indefinite cars} \Rightarrow \text{which car} \\ \text{a certain car of Definite cars} \Rightarrow \text{a certain one of } \left\{ \begin{array}{c} \text{the} \\ \text{these} \\ \text{those} \end{array} \right\} \text{cars} \\ \text{a certain car of Indefinite cars} \Rightarrow \text{a certain car} \end{array}$$

The assumption that the final noun in such constructions must be an underlying plural although some turn up as Surface singulars explains why nouns which have no plurals do not take such forms: *a certain blood. The assumption of indefinite character is supported by such facts as *there's a certain one of the cars on the rack but there's a certain car on the rack.

- 13 'Rules for English Pronominalization', Language, 39. 17-29 (1963).

- 14 One of these is discussed in Postal, 'A Note on "Understood Transitively"' *op. cit.* Another derives from the fact that underlying NP with head nouns which are identical and have identical reference indices cannot differ in any other element. That is, structures of the form the big boy helped the small boy cannot be interpreted as contradictory with the instances of boy coreferential. Furthermore, this is apparently not a kind of fact particular to English. It seems then that there is a principle of language which requires identical indices to occur only in nouns which have identical 'dominating constituents'. This latter term is required because such facts are not restricted only to NP and nouns. Facts of this general sort are further evidence to me that much of reflexivization and indeed pronominalization generally is really a universal phenomenon.
- 15 If, as seems correct, we take Reflexive to be a linguistic universal, i.e. a property characterized within linguistic theory, the constraint on [+Reflexive] introduction is presumably to be extracted from English grammar as a fact about human language as such. And one ultimate argument for the analysis proposed here, under which self/selve is a noun stem with the features [+Pro, +Reflexive] rather than an ad hoc grammatical formative, will be that this contributes greatly toward permitting a universal statement of the reflexivization operation. That is, properties like Pro and Reflexive are candidates for universal status but a particular formative of English is not.

Reflexivization can be taken as that subtype of pronominalization relevant to identical NP within the same simple sentence structure at the point of pronominalization. This latter constraint is necessary because copresence within the same simple sentence is at times a result of previous transformational operations. Hence it is not copresence within the same Deep simple sentence structure which is necessarily relevant. For example, in both English and Mohawk the possessor NP of a genitive construction reflexivizes by identity to the subject NP of a sentence although they start out in different simple sentences. But the processes of genitive formation in both languages insert the possessor NP within the same simple sentence as the subject. Thus Van Gogh cut off his own ear is the reflexive of Van Gogh cut off Van Gogh's ear where the two proper nouns have the same reference index. But the latter involves a Deep structure object NP containing a relative

phrase, i.e. an embedded sentence. Schematically:

(the ear [Van Gogh has wh some ear])

NP S S NP

Here the NP Van Gogh which is subject of cut off does not start out as part of the same simple sentence structure as the NP Van Gogh which is subject of has. Hence at that stage they are not subject to reflexivization which only comes about because of the results of intervening genitive formation rules. If the relative phrase embedded sentence is not reduced, no reflexivization is possible: *Schwartz loves the horse which himself has. Exactly analogous facts can be found in Mohawk. Thus we can possibly assume that some rule(s) to mark the head nouns of repeated identical NP as [+Pro, +Reflexive...] if they are within the same simple sentence structure at the point of application is a universal. An apparent further universal fact is that all 'modifiers' within the NP whose head is so marked must be removed, i.e. relative clauses, their reductions, etc. In many languages, of course, and Mohawk is a good example, the reflexive pronouns themselves drop. In Mohawk at least this is not ad hoc but a predictable result of the fact that all nonemphatic definite pronouns are elided. This is thus some strong evidence for the claim that reflexivization involves assignment of the feature [+Pro], characteristic of nonreflexive pronouns, as well as [+Reflexive]. There are many grounds for assuming that both reflexivization and pronominalization involve a further feature, which we might call Derivative, which distinguishes inherent pronouns from those derived by identity. For example, in English initial derivative pronoun NP drop in infinitives and gerunds although nonderivative ones do not. Thus Bill wants to go must be interpreted to have Bill as subject of both want and go so that the pronominalized form of the repeated Bill has dropped. But in Bill wants him to go the subjects of want and go are not understood as the same. Hence here the pronoun NP is not the result of any pronominalization operation but is instead simply the realization of an inherently [+Pro] noun chosen in the base. A possibility would be to assume that all nouns start out [-Derivative] and that pronominalization rules assign [+Derivative] thus distinguishing in terms of feature specifications inherent from derivative pronouns.

It should be obvious that all of these suggestions about linguistic universals in regard to pronominalization and reflexivization

must be taken as highly tentative and suggestive. We are clearly only on the threshold of understanding what is universal in such processes. But it is certainly not too soon to attempt to characterize this and one must insist that an important constraint on a correct theory of grammar is that it be able to extract what is universal here from particular linguistic descriptions and state it once and for all within the theory of language.

- 16 It is my feeling, however, that such rules characterize whatever is really common in those features of language which have been referred to as inflection. That is, inflectional elements are those segments added by SEGMENTALIZATION provided these segments are added in such a way that they become part of the same word as does that element whose features they mark.
- 17 Throughout this discussion we make the simplifying assumption that the segment introduced has only phonological properties. But this is clearly incorrect. It seems clear that these introduced segments must also consist of a set of syntactic features. This will, for example, be the basis for explaining the agreements which show up marginally in English in such cases as these boys, this boy, but much more fundamentally in languages like Spanish, etc. Furthermore and even more importantly, it is clear that many transformational rules must refer to the syntactic entity 'article'. But under our approach there is no constituent or node in trees to formalize this reference. Hence this must be done by assigning common syntactic features to all introduced articles. One of the most difficult questions in considering a theory of SEGMENTALIZATION rules is the relationship between the original set of feature specifications (for example, those of a noun) and those of an introduced segment which superficially mark some features of this element (for example, those of an article). It would seem correct to assume that the introduced segment contains a subset of the features of the original segment as well as certain special features to indicate that it is a grammatical not a lexical element and possibly to indicate what kind of lexical element it 'derives from'.
- 18 There is another rule of article attachment which also works for nouns marked [+Pro]. This involves indefinite forms some, every, any, no, etc. It is this rule which accounts for the

single word character of everyone, anywhere, nothing, some-one, etc. in contrast to the two word character of otherwise parallel [-Pro] forms every person, any location, no car, some man. The same rule also explains the one word character of the question forms who, what, where, when, how, etc. as compared with what person, what car (*what one, *what thing) what place, etc. since these single word forms are derived from wh+some + [+Pro] and their differences are a function of other features of the noun. In other words, the who of the interrogative who came is to the someone of some-one came as the what man of what man came is to the some man of some man came. Attachment of article to noun only takes place when the noun is [+Pro]. The same rule may just possibly be the explanation of the partially parallel 'relative pronouns'. That is, the boy who saw me derives from a more abstract form the boy (wh some boy saw me). The identical

S

S

noun in the latter may then pronominalize (i.e. turn [+Pro]) which triggers subsequent wh+some attachment just as if the feature [+Pro] were inherent as in the interrogative forms. This yields the single word form. However, there are problems here having to do with which/that and who/that alternations which this account does not explain. The type of pronominalization involved in relatives also involves many difficulties. And there are other problems having to do with question-relative parallels and differences.

It would be natural to attempt to combine the article attachment rules for definites with that for indefinites. But there are important differences. Consider: you big ones; *you (ones) big; someone big; *some big one. This issue must therefore be considered open.

- 19 Exactly how these shifts of form should be accomplished is not clear. It might be suggested that transformational rules are appropriate here. My own feeling is, however, that this is not correct. Rather I suspect that it should be possible to reuse the dictionary after the transformational rules have been applied so that the dictionary is used both to fill in the lexical items of Deep structures and also to specify those aspects of phonological form which are transformationally determined but ad hoc, i.e. not a function of general phonological rules. A similar approach should also be used to describe suppletions. How this proposal to reuse the dictionary should be formalized is, of course, a complicated matter which we can not go into

here. Our assumption is, however, that for example, self/selve is the only noun in the dictionary marked [+Reflexive] so that it is the only one which can be correctly selected on the second pass through the dictionary for those positions which have been transformationally marked [+Reflexive]. The dictionary entry for the noun stem self/selve (which has no semantic element) thus represents most of what is ad hoc to English in ordinary reflexivization.

- 20 A difficulty here is that, of course, the phonological suffix is actually added not to the noun but to the final word in the entire NP of which the noun marked [+Genitive] is head. Thus: the boy who is sleeping's dream; the girl I talked to's hairdo, etc.
- 21 Notice that from this point of view the substandard them guys, etc. is a perfectly natural sort of minor morphophonemic difference in article shape which one would expect to differentiate different dialects.
- 22 Op. cit. Part II, 85.
- 23 'Determiners and Relative Clauses in a Generative Grammar of English', Language 40. 48-9 (1964).
- 24 Op. cit. Part II, 261-2.
- 25 Notice how they provide justification for the assumption that ARTICLE ATTACHMENT works also for nonreflexive forms.
- 26 I do not know whether such dialects have forms like them'un where the standard language has them but this would hardly be surprising. I presume, however, that they do not have singular I'un, you'un. A dialect containing the latter is, however, not at all unthinkable. It would simply be one where the deletion rule has been eliminated entirely for nonthird person forms. The simplest dialect of all would, of course, have no deletion of one/ones in any of these cases regardless of person or number.
- 27 The assumption here is that minor syntactic differences between closely related dialects are a function of differences in the transformational rules or in the lexicon, not of differences in the set of base rules which determine the general grammatical properties of Deep structures.
- 28 For some brief discussion, cf. J. Katz and P. M. Postal, An Integrated Theory of Linguistic Descriptions, 127-138.

THE SYNTAX OF THE ENGLISH EXPLETIVE 'IT'

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In his as yet unpublished doctoral dissertation The grammar of English predicate complement constructions,¹ Peter Rosenbaum presents a strong argument for maintaining that the underlying phrase markers for sentences such as (1) and (2) below contain subject noun phrases of the form expletive it plus a sentence complement, while sentence (3) contains an underlying object noun phrase of the same form.

- (1) It turned out that no one was available for comment.
- (2) It bothers me for you to have the radio turned up so loud.
- (3) It was expected by everyone that at any moment the enemy would begin an invasion.

To account for the fact that the sentential complement to the expletive appears at the end of the main sentence in which it occurs, a transformational rule of the form (4) is required in the grammar of English.

- (4) EXTRAPOSITION TRANSFORMATION (obligatory under certain conditions, optional under others).

X₁ [[it]_N, S,]_{NP} X₂

1 2 3 → 1 Ø 3 + 2

The name 'extraposition' for Rule (4) is due to Rosenbaum,² and is entirely felicitous. Rosenbaum also provides a full discussion of the conditions under which the rule is obligatory, and when it is optional.

In case the extraposition transformation does not apply to a phrase marker to which it could have applied, then a later rule, which is obligatory, applies to delete the expletive before its sentential complement. We state the rule here as (5).³

(5) EXPLETIVE DELETION BEFORE SENTENTIAL COMPLEMENT (obligatory and noun phrase local).

[it]_N, S

1 2 → Ø 2

Accordingly, we may have either of the following sentences in English; they are what may be called stylistic variants of each other.

- (6) It is obvious that powerful democracies are aggressive.
 (7) That powerful democracies are aggressive is obvious.

Rosenbaum points out further that in case the extraposed sentence is an infinitive, its subject then replaces the expletive, provided that the main verb of the main clause is intransitive or passive. We formulate the rule here as (8).⁴

(8) EXPLETIVE REPLACEMENT BY SUBJECT OF EXTRAPPOSED INFINITIVE (obligatory).

X₁, [[it]_N]NP, X₂ [V]VP X₃ [, NP, X₄ for to X₅]S

1 2 3 4 5 →
 1 Ø + 4 3 Ø 5

Rule (8) accounts for such sentences as:

- (9) The policeman happened to witness the accident.
 (10) The Egyptians are said to have worshipped the cat.
 parallel to:

- (11) It happened that the policeman witnessed the accident.
 (12) It is said that the Egyptians worshipped the cat.

in which an infinitival rather than a that-clause complement to the subject expletive is chosen. The formulation of expletive replacement given in Rule (8) is designed to prevent the derivation of:

- (13) *You bother me to have the radio turned up so loud.
 and to permit instead the derivation of sentence (2):

- (2) It bothers me for you to have the radio turned up so loud.

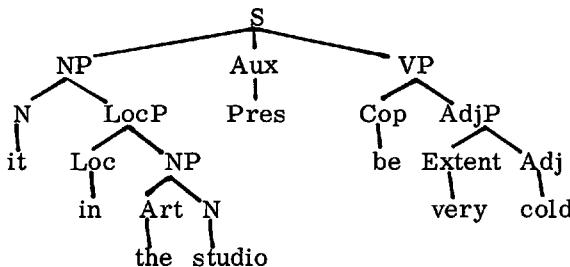
The purpose of this paper is to show that Rosenbaum's analysis can be quite naturally extended to describe such English sentences as the following, in which the expletive is not in construction with an underlying sentential complement, but rather with a locative, measure or time phrase which is not of sentential origin.

- (14) it's very cold in the studio.

- (15) It's a long way from here to the moon.
 (16) It's too soon yet for us to tell whether the patient will recover.

Let us take up each of these possibilities in turn, starting with sentences like (14), in which we maintain that the expletive is in construction with locative phrases in their underlying phrase markers.

If we take as the underlying phrase marker for (14) the following:



we can obtain the derived phrase marker for (14) by a rule of extraposition which is exactly like that of Rule (4), except that where (4) mentions the constituent S, this rule mentions the constituent LocP. We state that rule as (18).

(18) LOCATIVE EXTRAPosition TRANSFORMATION
 (obligatory)

$$X_1 \quad [[it]_N , LocP ,]_{NP} X_2$$

$$1 \qquad 2 \qquad 3 \rightarrow 1 \emptyset 3 + 2$$

Upon the application of Rule (18), the locative phrase becomes merely a constituent of the main sentence, and as such becomes more or less freely movable. If another sentence adjunct, such as a time phrase, is present, the extraposed locative phrase is free to occur either before or after it, as in:

- (19) It was very cold in the studio yesterday.
 (20) It was very cold yesterday in the studio.

The locative extraposition transformation is obligatory. If the locative preposition in the extraposed locative phrase is one of the designated elements in, on or at, and if it is followed by a noun phrase, then the locative phrase may optionally replace the expletive. Following Fillmore's suggestion concerning prepositions which introduce noun phrases in subject position, the preposition is then deleted, leaving the noun phrase of the locative phrase as the derived subject of such sentences.⁵ The expletive replacement by locative phrase transformation may be stated in

the following way; it is similar in form to Rule (8), but is simpler to state, and is optional rather than obligatory.

(21) EXPLETIVE REPLACEMENT BY LOCATIVE PHRASE TRANSFORMATION (optional)

$X_1, [[it]_N]NP, X_2, [\{in, on, at\} NP] LocP$

1 2 3 4 → 1 Ø + 4 3 Ø

According to Rule (21) and the subsequent deletion of the locative preposition, we obtain the following sentence, derived from the very same underlying phrase marker (17) which underlies (14):

(22) The studio is very cold.

The derivation of (22) from an underlying phrase marker in which the subject is of the form expletive plus the locative phrase in the studio accords with our understanding of (22), that the studio as an object is cold. Thus (22) contrasts both semantically and syntactically with:

(23) The stone is very cold.

which has no alternate version:

(24) *It is very cold {at
in
on} the stone

The underlying, as well as the derived, subject of (23) is the stone, and unlike (22), the sentence is understood to mean that the stone as an object is cold. It will be observed that there are indeed sentences which are ambiguous in this regard; consider for example:

(25) The oven is very hot.

Sentence (25) can mean either that as an object the oven is hot (if you touch it you will get burned), or that as a container it is hot (you can bake bread in it). Under the latter interpretation, it is synonymous with the sentence:

(26) It is very hot in the oven.

These observations help to confirm the syntactic analysis which we have just given for sentences like (14).

In case the locative phrase which is extraposed by Rule (18) is not introduced by one of the prepositions designated by Rule (21), and/or it does not contain a noun phrase, then of course Rule (21) cannot be applied, since its structural conditions are not met. The following sentences therefore have no synonymous counterpart in which the expletive is replaced:

(27) It's dirty underneath the bed.

(28) It's crowded between the sheets.

(29) It's hot out today.

(30) It's pleasant in here

(31) It's busy in town this week.

If the extraposed locative phrase is the locative word out, it may optionally be deleted; thus sentence (29) has what seems to me to be a synonymous counterpart in:

(32) It's hot today.

Noun phrases of the form expletive plus locative phrase can serve as subjects of predicates whose head is either (i) an adjective designating an accidental property (in the Aristotelian sense) of locations, surfaces or containers, (ii) a nominal construction such as bad weather, tough sledding,⁶ or (iii) a verb designating either a meteorological phenomenon, such as rain, snow, blow, clear up, warm up, or physical sensation such as hurt, itch, ache.

Certain of the meteorological verbs appear to be selected by subjects of the form expletive plus the designated locative element out. Since that element is deletable, we obtain immediately the familiar and not at all illogical (as Longacre appears to believe)⁷ sentences:

(33) It's raining.

(34) It snowed yesterday.

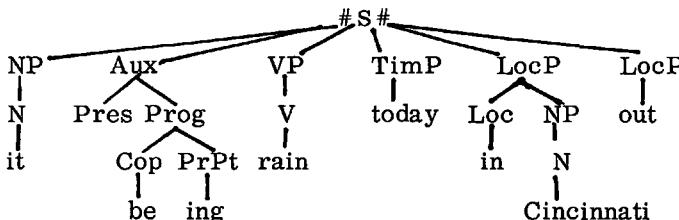
In this connection, it is important to notice that despite the existence of Rule (21) in the grammar of English, we have only the sentence:

(35) It's raining today in Cincinnati.

and not:

(36) *Cincinnati is raining today.

The derivation of (36) can be prevented by maintaining that in Cincinnati is not, in fact, the extraposed locative phrase adjunct to the expletive at all, but that rather out is. Upon application of the locative extraposition transformation, Rule (18), to the phrase marker underlying (35), we obtain:



Rule (21) cannot apply, however, to (37) because the final locative phrase, which is the extraposed one, is not of the proper form. To obtain (35), of course, the out must be deleted.

Sentences whose main verbs are verbs of physical sensation

present too many problems of analysis for me to consider them in detail here. Let me simply comment that the rule of expletive replacement by locative phrase appears to apply obligatorily in such sentences. Thus, we have:

- (38) It hurts all over.
- (39) I hurt all over.
- (40) My stomach hurts (me).

but not:

- (41) *All over hurts (me).
- (42) *It hurts (me) in my stomach.
- (43) *I hurt in my stomach.

If in sentences (38) and (39), all over is taken to be the locative phrase adjunct to the subject expletive it, we can account for such sentences, provided we also posit a rule which obligatorily replaces the expletive by the direct object of hurt (which is itself optionally chosen). A verb such as ache obligatorily occurs with a direct object, so that only the counterpart to (39) with the main verb ache is grammatical. In (40), in my stomach may be considered the locative phrase adjunct to the subject expletive. As noted, that adjunct obligatorily replaces the expletive, thus blocking the derivation of (42) and (43). Sentence (41) is blocked because its locative phrase is not of the form prescribed by Rule (21).

As a final comment regarding noun phrases made up of the expletive plus a locative phrase, we note that they may also be selected as objects of verbs (particularly causatives of adjectives like hot, with which they occur as subjects). This fact is illustrated by the passive sentence:

- (44) It isn't heated in the attic during the winter.

which corresponds to an active sentence such as:

- (45) We don't heat the attic during the winter.

I cannot go into the details regarding noun phrases made up of the expletive plus either a measure phrase or a time phrase adjunct, except to point out (i) they appear only to serve as subjects of sentences and (ii) the two transformational rules of extraposition and expletive replacement need to be broadened to allow their application to sentences containing such noun phrases. Concerning measure phrase adjuncts, note that a rule of extraposition is required to move the measure phrase from here to the moon to sentence-final position in sentence (15). Furthermore, to the moon may optionally replace the expletive by a rule comparable to (21), resulting in the sentence:

- (46) The moon is far from here.

We must also allow for the appearance of away in sentences like

(46), for example:

(47) The moon is far away from here.

I am not certain as to what the best means for handling this fact is.

Finally, concerning time adjuncts to the expletive, we note that versions of extraposition and expletive replacement also apply to sentences in which such noun phrases are chosen as subjects, and that the designated time words now, then may also replace the expletive. We are able to obtain both:

(48) It is a good time now to sue for peace in Vietnam.

(49) Now is a good time to sue for peace in Vietnam.

When the head of the predicate of such sentences is an adjective, then that adjective (i) must be either early, late or soon, (ii) if the adjective is early, then the time adjunct to the expletive is yet (any more or any longer in negative sentences), (iii) if the adjective is late, then the time adjunct is already (yet in negative sentences), and (iv) if the adjective is soon, then the adjective itself must be modified in a rather complicated way and the choice of yet or already depends upon the choice of that modifier. Thus we have:

(50) It's early yet.

(51) It's late already.

(52) It isn't early any more/any longer.

(53) It isn't late yet.

(54) = (16) It's too soon yet for us to tell whether the patient will recover.

(55) It's soon enough already for the doctor to remove the stitches from your cut.

It is not yet obvious to me how to express in terms of the lexical representations of the items early, late, soon, already, yet, any more, any longer, the various selectional restrictions which hold among them. This much, however, is clear. The underlying phrase markers for these sentences have as subject noun phrases the expletive plus the appropriate time word adjunct. I am also reasonably convinced that the item yet which appears in affirmative sentences with early and in negative sentences with late is the same lexical item, with a meaning roughly statable as 'it is time before some specified point in time'.

This concludes my survey of the various constructions which the expletive it in English can enter into. Having dealt at some length with the transformational apparatus required to handle sentences in which the expletive appears, at least in their underlying phrase markers, let me now take up briefly the required phrase

structure and lexical apparatus. Disregarding those constituents which appear prenominally in the noun phrase, we may view the phrase structure expansion of the noun phrase as being statable by the rule:

$$(56) \text{ NP} \rightarrow \dots \text{ N} \left\{ \begin{array}{l} \text{S} \\ \text{LocP} \\ \text{MeasP} \\ \text{TimP} \\ \text{of NP} \end{array} \right\}$$

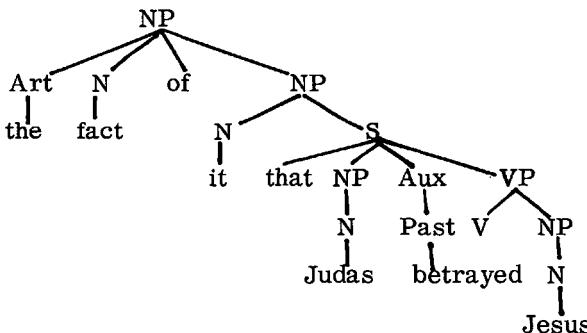
The expletive noun it may be lexically designated by the strict subcategorizational complex [+ S, + LocP, + MeasP, + TimP, - of NP], and it can be argued that it alone is marked 'plus' for the features pre-Sentence, pre-Locative Phrase, pre-Measure Phrase and pre-Time Phrase. It is almost certainly true that of all nouns, only the expletive it is marked [+ S]; nouns such as fact which had been thought to be so marked on the *prima facie* evidence of such expressions as:

(57) the fact that Judas betrayed Jesus
are really marked [+ of NP]. Compare with (57) the following expression:

(58) the fact of Judas' betrayal of Jesus

The underlying phrase marker for the noun phrase of (57) is thus really something like:

(59)



Again on *prima facie* evidence, one might be persuaded that certain abstract nouns are marked [+ LocP], for example event, situation; cf.

(60) Some recent events in Africa are difficult to understand

(61) The situation at headquarters was hopeless.
and that certain nouns like distance are marked [+ MeasP]; cf.

(62) The distance from here to the moon is rather great.
 I believe however that there is fairly strong evidence for analyzing these expressions differently, and that the nouns are not so entered in the lexicon. In fact, one ultimately may wish to consider these nouns and others like them to be nominalized verbs-- whether or not this will be necessary is not yet clear,⁸ but the evidence does clearly point to the very unique status of the expletive it in the English lexicon. One can say of it quite simply that it is a 'device' for making sentences, and locative, measure and time phrases into underlying subjects, and in the case of sentences and locative phrases into underlying objects.⁹

FOOTNOTES

- 1 Peter S. Rosenbaum, The Grammar of English Predicate Complement Constructions, Ph.D. Dissertation, Massachusetts Institute of Technology, 1965. (In preparation under the title Principles of Complex Sentence Formation in English.)
- 2 Ibid.
- 3 The transformation is noun phrase local (in fact strictly local) in the sense of Noam Chomsky, Aspects of the Theory of Syntax, Cambridge: The MIT Press, 1965, 215. The notation used in this paper for formulating transformations is based on the assumptions that they apply to sentences (i.e. that they are sentence local) unless otherwise specified and that they make use only of the elementary operations of deletion, adjunction and substitution.
- 4 This is not, perhaps, quite a correct statement of the rule (it would prevent us from deriving, for example, John appears to me to be drunk) but it is satisfactory for my purposes. The expletive may, in certain cases, also be replaced by a post-verbal noun phrase of the infinitive, as in the now famous sentence John is easy to please.
- 5 I differ from Fillmore in that I distinguish between the categories LocP and NP. He would consider a locative expression to be a noun phrase which simply happens to be introduced by a certain kind of preposition.
- 6 This is a very limited pattern in English. Some speakers may even reject such sentences as It's bad weather out today.
- 7 Cf. Paul M. Postal, 'Review of Robert E. Longacre, Grammar Discovery Procedures', Int. J. Amer. Ling. 32 (1966), 98. Postal presents there informally a rather different analysis from the one I suggest here for such sentences as It's raining,

etc. I suspect that it would be difficult to generalize Postal's suggestion to cover the various kinds of sentences discussed in this paper, but I do not wish to prejudge the case, not having seen how Postal would choose to handle them within the framework he suggested.

- 8 On the derivation of nouns from verbs even where there is no 'real' verb in the lexicon to serve as the basis for the derivation, see George Lakoff, On the Nature of Syntactic Irregularity, Report No. NSF-16 of the Harvard University Computation Laboratory, Cambridge, December 1965.
- 9 This last remark is of some interest in connection with the claim of George Lakoff of Harvard and John Ross of MIT (not yet published to my knowledge), that the constituents which comprise the verb phrase in English are extremely limited -- namely the verb itself, its object or objects and locative or directional phrases. If their claim is correct, then the fact that noun phrases made up of the expletive plus measure phrases or time phrases cannot occur as objects of verbs in English can be shown to be not at all accidental. We could say, for example, that the object noun phrase of a verb cannot directly introduce a constituent phrase which itself cannot freely occur as an immediate underlying constituent of the verb phrase.

A RE-EXAMINATION OF THE ENGLISH ARTICLES

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I certainly do not wish to claim that I have made anything like an exhaustive examination of the literature on the definite article in English, but I believe that I have collected what could be described as a fair sample of statements distributed over the last sixty-eight years. As might perhaps be expected, these statements do not reveal a great unanimity of opinion, and do not, for me at least, add up to a clear explanation of the syntax and use of the in English.

As also might be expected, one of the best statements is also the earliest. This is Henry Sweet in 1898:

'...the definite article is put before a noun to show that the idea expressed by the noun has already been stated, and to refer back to that statement.' (55)

Note the door 'of the room the speaker is in, or is thinking of.' (Ibid.)

This statement, it is to be noted, contains clear recognition of both previous mention and nearness, as uses of the definite article. These two uses are firmly established, and indeed, are just about all that is firmly established.

There follows in chronological order, a very different statement, also excellent in its kind. This is the detailed description of Poutsma (1914), which occupies no less than 182 pages of his monumental grammar. All sorts of detailed descriptions of uses, with copious examples, are given, but the general theory is only

given in this not very graspable formulation:

'The primary and most important function of both the definite and the indefinite article is to indicate that the thing of which we have formed a conception, is marked off or defined, i.e. thought of within certain physical or imaginary outlines or limits.' (517)

While it is true that the quantizing function of the articles is generally recognized, it is also true that there are only a few situations, such as the contrast between milk and the milk, or between sin and a sin, where the presence or absence of an article is clearly meaningful in these terms.

Curme (1931) is a follower of Sweet, but adds a number of other statements which are not so clear--

'As a demonstrative the (has) twofold function: anaphoric the pointing backward to a person or thing already mentioned ... determinative the, pointing to a definite person or thing, described usually by a following genitive, adverb, prepositional phrase, or relative clause: the hat of my brother; the tree yonder; the hat on the table; the hat which I hold in my hand. Of course, a person or thing which is single in kind needs no description: the king; the queen.'

For me, at least, there is always a difficulty in understanding statements like this about the determinative use of the article. If I say 'a dog bit me', I certainly mean a single, perfectly definite dog, yet it is the indefinite article which occurs. Yet it is true that Curme is at least properly aware of the high degree of co-occurrence between the and the following relative constructions, to which I shall return later.

Another one of the treatments which is in the admirable European tradition of extensive and accurate collection and presentation of data, is that of Kruisinga (1932). In general, he gives elaborate classifications and sub-classifications of uses of the, such as 'the deictic article', 'the classificatory article', and so on, but little theory. Yet one of his statements is important, since it is in contradiction with a number of others:

'Some class-nouns, when denoting persons or things single in their kind are used with the article. They are equivalent to proper names: The Lord, the Devil, the Bible, the Tower, the Mint, the sun, the moon. Also the Kaiser, the King, the speaker, the river, referring to one river familiar to the speaker.' (251)

It will be remembered that Curme called such uses as the king instances of determinative the, rather than the equivalent of a

proper name. Jespersen, as we shall see, thinks of proper names as essentially article-less. It is also noteworthy that Kruisinga seems to be aware of the nearness-use of the article, and to think that it can be united with his quasi-proper names.

One of the worst descriptions of the definite article is from a book which a few years ago it was fashionable to praise as far superior to its successor. The book is Webster's Second, dating from 1934. Here is its definition of the:

'A demonstrative adjective used chiefly before a noun to individualize, specialize, or generalize its meaning, having a force thus distinguished from the indefinite distributive force of a, an, and from the abstract force of the unqualified noun. Thus, the man points to a particular man, as distinguished from a man, and from the generic man. Special uses are: 1. Indicating identity with someone or something previously mentioned, etc.'

There are at least two things wrong with this definition. First, it is by no means clear, since terms like 'specialize' and 'generalize' are contradictory. Second, using man as an illustration is unfortunate, since it is nearly unique in having a generic form without the article. Far commoner is use of the definite article with generic force, as in the horse is a quadruped. I should also disagree with reduction of previous mention to the position of a merely special use.

The fullest, most sophisticated, and most suggestive treatment of the is that of Christophersen (1939):

'...the has as its special function the marking of familiarity, while a is the mark of unity. This theory can tell us why generic continuative-words and plurals have no article. Their very generality and the vagueness of their quantitative delimitation precludes familiarity, or to put it conversely: familiarity presupposes sharp and precise limits. The fact that they are not divisible into individuals makes a impossible with these words.' (71)

Christophersen's excellent study was used as a foundation for the Jespersen-Haislund treatment, which seized the notion of familiarity as the underlying basis for the whole discussion. It is also noteworthy that Christophersen differs from Poutsma, in that he separates the function of the quantizing indefinite from the familiarity-indicating definite.

Jespersen's ideas on the articles are found only in the portion of his very thorough grammar which was completed after his death by Niels Haislund, though we are told that the content of

this portion of the work was in general agreement with Jespersen's ideas. At page 437 there is a diagram, which contributes to the clarity of the presentation as is usual with Jespersen:

	Indef.	Def.	Zero
Unit-word	x	x	
Mass-word		x	x
Proper names			x

Jespersen's general theory can be given as follows:

Stage I. Complete unfamiliarity (or ignorance)

1. Unit word. Indefinite article an apple
2. Mass word. Zero he drinks milk
3. Unit word, plural. He eats apples every day.

Stage II. Nearly complete familiarity 'The word in question still requires the.'

1. The necessary determination given by the context--'...an old tailor. The tailor was...''
2. The necessary determination is given by the whole situation. 'The government [of the time] ...the devil.'

Stage III. Familiarity so complete that no article is needed.

1. In direct address. 'God'. 'Come along, boy.'
2. Proper names, John, Mr. Smith.
3. God.
4. Father, uncle, baby, nurse, etc. That is, members of the immediate household.
5. Dinner and other regular meals.
6. Church, prison, town, etc.

Jespersen's formulation is clear, and has the great virtue of attempting to unify the whole body of confusingly various uses. If it is to be criticized, the criticism must be that which it is always possible to direct towards a first attempt--it is open to improvement.

The remaining descriptions and definitions of the definite article are much less important, and are necessary only to round out our survey. First comes Webster's Third (1961). Since I am one of those who believe the book was most unfairly attacked, it is a pleasure to note that the definition is greatly improved over that of the Second, and that it is also better than some of those which follow it in time:

'Used as a function word to indicate that a following noun or noun equivalent refers to someone or something previously mentioned or clearly understood from the context or the situation.'

That is, for the first time, the notion of identification is made the principle use, though such a conclusion had been hinted at in Sweet. This is essentially the position which I shall also take.

The next description was delivered at the Teddington Conference on Machine Translation in 1961. How far Barton's opinions are characteristic of MT researchers and computer analysts I do not know. His formulation is the most broadly general and philosophic, and also is the only one I have seen which deliberately sets out to be universal, that is, to apply to all languages having articles.

'We regard a thing in isolation when we are interested in presenting it in its own temporal continuity, its history past or future. The function of the definite article is to present a thing in this way. The indefinite article, on the other hand, presents the article as one among others, not singled out by its particular history.' (1)

My own reaction to such a description is that it may indeed be true, but that isolation and class-membership as focuses of interest, would hardly be precise enough for me to use them as a basis of prediction on which situations would require an article, which not.

1962 produced one of the best of the brief descriptions of article usage, that of Barbara Strang. Miss Strang sets up five possibilities: (pages 108-111)

1. zero + noun singular (cake)
2. the + noun singular (the cake)
3. a + noun singular (a cake)
4. zero + noun plural (cakes)
5. the + noun plural (the cakes)

She is, of course aware that there is some 'sleight of hand' as she puts it, in these examples, since she has chosen a noun which has homonymous forms, one countable, the other uncountable.

The strength of her account, which one wishes were more followed by American grammarians, is double. First, she recognizes that meaning springs from contrast, or the lack of it, as when she says 'The kind of meaning contributed by any one term is determined in relation to the other terms available with the given noun form.' (109) And second, she makes a valiant effort to reduce the many different and individual uses of the article to general heads. Of these there are two, the particularizing uses, under which she groups previous mention, contiguity, contextual identification and interestingly 'subsequent specification in the utterance ('The passage I have quoted'). The second type is the

non-particularizing use, essentially what has usually been called generic use. An interesting example is a sentence which she says contains the particularizing use followed by the non-particularizing--' 'Tis the voice of the Sluggard.' It is also interesting that she has great difficulty with a sentence like 'In (the) spring I (shall) take a week's holiday.' Here she finds that the used without shall as a modal is non-particularizing, referring to an annual event. Used with shall, the is particularizing, referring to the coming year. It is easy to agree with her that the two versions of the sentence are different in their total meaning, but it is still possible to object to an analysis of the meaning of the article which insists on such a sharp division.

The last description is one that we can take as typical of transformational views, since we are told that the outlines of the description of the articles and other determinatives came from instruction by Chomsky himself. The description comes from Roberts (1964).

'The gives the noun a definite meaning, specifying a particular one or a particular group. A and some do not do this.' (12)

As with earlier descriptions which insist on definiteness, or particularity, I find that a dog bit me is quite as definite, particular, and singular as the sentence would be with the other article.

A second passage is of interest, since it returns to the idea of proper-names marked by the which we have seen earlier in Kruisinga.

'There are some proper nouns in English which have the word the as a part of them: the United States, the Sahara, the Queen Mary, and perhaps also the devil, the sun, the moon. Strictly speaking this is not DEF, the definite article, but part of the proper noun, something that one learns along with the rest of the word... These would be dealt with in that part of the grammar which also deals with such structures as suffixes and prefixes.' (21)

Roberts is quite right in saying that with these words the definite article is a fixed entity which must be learned along with the word itself, but it seems to me that he is going too far in saying that the article is to be lumped with prefixes. In all of these forms, even place names, the is syntactically like the definite articles elsewhere, in that it can be separated from the noun or name by an adjective--the old Devil, the powerful United States, even the beautiful Hague.

What can we say emerges as consensus from this nearly three-

quarter century concern with the articles? I am afraid not very much. I may be unfair, but I should say that we have advanced very little beyond the description by Sweet in the last century. Sweet recognized the two uses which have been generally accepted ever since--the previous mention use, and the proximity use. Curme added the statement that particularizing phrases, like relatives, tended to require the definite article, and there has been general agreement on many nouns which represent one-member classes. There is also agreement that proper names are special in either using or not using the definite article, but there has been curiously little mention of the fact that it is just this fixity of usage which names have in common.

Jespersen is, I think, quite right in dividing up nouns into three syntactic classes according to their usage of articles, but instead of setting up a class with definite and indefinite articles, a class with definite articles, and a class with no articles, I should describe the classes in this slightly different fashion.

- I. Two-article nouns. These forms have both an indefinite and definite article. The plural of the indefinite article is a zero allomorph (that is the slot for the article is not filled by an observable form, though the article-less plural is syntactically like the indefinite singular). If we recognize the zero allomorph of the indefinite plural, we can then say that two-article nouns must always have an article, either indefinite or definite.

Example:	a book	the book
	books	the books

- II. One-article nouns. Among these nouns are Jespersen's mass-words, and Christophersen's continuative words. In this country they are commonly called mass-nouns, or uncountables. Uncountables typically lack plurals, but from the present point of view, their central characteristic is lack of the indefinite article, though in use of the definite article, they are more nearly normal.

Thus

We want money, and we want the money for a good cause. Also falling into the group of one-article nouns are the abstracts, which are like the uncountables in lacking plurals and indefinite articles. They have definite articles, but usually only when there is a following relative construction, as in the following:

Man pursues happiness, but the happiness he gets, is little enough.

III. Fixed usage nouns. These are nouns which either never take an article of either sort, or which always take a definite article. The largest group of nouns which fall here are place and proper names. Personal names, be it noted, normally have no articles, but there are occasional aberrant names, such as the Cid, or even the McGregor. Place names are with or without the article, sometimes unpredictably, as in Harlem, but the Bronx. To be included with the fixed usage nouns are a number which are not often thought of as names, particularly the nouns for one-member classes, like the sun, the moon, and even the generic use of man, which is always without article. Notice, then, that if the generic man is to be treated as a fixed usage noun, and so like a name, that generic uses of other nouns which always take the article, are like names also. Thus our earlier sentence, the horse is a quadruped. We shall return to the meaning of these forms later. Here it is enough to point out that the impossibility of contrast makes the use or absence of the article in some sense meaningless, though it is obvious that often enough the presence or absence of the article identifies the noun expression as being a noun of one class or another. Notice the two sentences

John never read Hamlet, and

John never read The Hamlet.

In dealing with articles or their absence as markers of fixed-usage nouns, I should now call the presence or absence of the article a meaningless identifier, very nearly like the meaningless identifier which distinguishes goat from coat or oat.

We can now go on to discuss the meaning of the articles. As said earlier, the most nearly successful attempt to set up a generalized meaning for the articles is to say that they are markers of three stages in familiarity. I should prefer to use the terms 'identified', and 'unidentified'. Also, I would begin with the class of nouns where there is full contrast, the two article nouns like book, or door. I do not need to dwell on the previous mention uses for these nouns, as in

I bought a book, but the book was cheap.

Or,

I tried a door, but the door was locked.

The only point to emphasize here is that since the definite article is used in accord with whether the referent has been previously

identified, whether or not the noun has occurred before, the use of the article often defines two nouns as strictly synonymous, in a given discourse. Notice

A dog bit me, but the wretched little creature ran away.
 Another rather less important point would be--if we knew it--determination of the span over which previous mention of an item is effective in demanding the use of the definite article. We can be sure that it is effective over the span of the sentence, but it is also certain that its effectiveness can go beyond a sentence boundary. Use of articles, therefore, is one of the areas in which stylistic constraints affect items which are unpredictable in strictly linguistic terms.

It is the basic contention of this paper that the second mention usage of the definite article is the fundamental one, that many of the other, even the more special, uses of the definite article can be so explained as to be referred to second mention. One of the clearest of these special uses is in nicknames, which have been noticed from time to time (as in Strang) as a special sort of idiom. I refer to forms like 'Eric the Red', 'Alfred the Great', or 'Richard the Lion-Hearted'. It will be remembered that an older form of repetition-avoidance was deletion of the repeated item, rather than use of the substitute form, one. Thus the song--'I bet my money on a bob-tail nag, somebody bet on de bay'. In my own contemporary idiolect, I believe that I would be more likely to say 'the bay one'. Thus then, all instances of definite articles in the second member of nickname forms can easily be derived from second mentions of the names, subject to deletion, as 'Eric, the Red Eric'.

The explanation of nicknames just given is a tiny example of the way in which transformational analysis has freed us from some of the well-meant, even necessary, taboos of structuralism against deletion and use of zeroes. In what follows I shall make use of just such techniques in an endeavour to push still further the identification of second mention as the basic usage of the definite article. A typical comment on one type of use is that in which the noun is followed by a relative clause, with our without a wh-element, as in Barbara Strang's 'subsequent specification' example, 'The passage I have quoted.' The difficulty with assuming that the article is required by the relative construction, or in assuming that the relative specifies, lies in the fact that we can have either article before such a construction

A man who refuses alcohol is a teetotaller.

The man who refuses alcohol is a teetotaller.

Transformational analysis has quite firmly established that both these sentences are the result of embedding, and that each sentence has its source in two originally independent (but of course hypothetical) sentences. I should set up the source sentences for the first example given above as

A man is a teetotaller. The man refuses alcohol.

In the process of embedding the second sentence into the first, the second mention form (the man) is replaced by who, and the first mention form remains.

For the second example, I should set up the hypothetical source sentences as

A man refuses alcohol. The man is a teetotaller.

The process of embedding inserts the first sentence into the second, replacing A man with who. Thus it is the second mention form which remains.

The same type of explanation applies to Mrs. Strang's construction where there is no wh-. Her incomplete sentence was

'The passage I have quoted [is...]'

The source sentences are something like

A passage [is...]

I have quoted the passage.

The process of embedding is more complex, since it involves shifts in order, and deletion of which, but the nature of the operation is the same. It is the first mention form which has been replaced by wh-, which is then deleted, and it is the second mention form which remains.

Among the other 'subsequent specification' forms are forms where the noun is followed by a prepositional phrase. Here also we can have either a definite or an indefinite article.

A book on the table fell off.

The book on the table fell off.

For the first example, the source sentences are

A book fell off. The book was on the table.

The second sentence is embedded in the first, with deletion of the subject and was. The first-mention form remains. The source sentences for the second example can be set up as

A book was on the table. The book fell off.

The first sentence is embedded into the second, with deletion of A book was. The second mention form remains.

When the following prepositional phrase is one in of, the difficulties are enough greater so that this construction must be thought of as a special case. I shall use the following contrasting pairs as my examples.

A side of the box fell off.

The side of the box fell off.

I conceive the source sentences for the first example to be

A side fell off. The side was a side of the box.

The second of these source sentences offers a surface difficulty at the outset. That is, the sequence 'the side...a side'. The difficulty is on the surface only, however. The first form is a true second mention form. The second occurrence of side is not a mention of the same side, but of one of the sides of the box, unidentified, and so a first mention. About the use of the with box, we are not concerned. English requires one or the other article here, and I have arbitrarily chosen the.

The process of embedding here proceeds in stages. I would describe the first stage as deletion of a side from 'The side was a side of the box'. This deletion is, I think, related to the haplogical deletions in compounding, which Nelson Francis has called attention to, in such forms as 'Pierced (ear) earrings'. The result is a non-viable 'The side was of the box', in this instance, however. The next stage can be described as an example of what on other occasions I have called dove-tailing, where one sentence is fitted into the other with deletions such that parts of each sentence remain.

A side [the side was] of the box fell off.

For the second example,

The side of the box fell off.

the process is much the same, except that the source are combined in an intermediate stage as follows, with the first mention sentence added after the second mention.

The side [was a side] of the box [a side] fell off.

It is the second mention form which remains in the final sentence.

In all the forms in which the noun is followed by some type of phrasal construction, then, the use of one article or the other can be explained on the assumption that one or other of two mentions has been deleted. When the indefinite article is used, it is then the unidentified form of the noun; when the definite article is used, it is the identified form of the noun which is present. The difference in meaning can be clearly seen in the last two contrasting sentences

'A side of the box...' and 'The side of the box...'

In the first example the noun is not identified, and thus implies that there is more than one side to the box. In the second the noun is identified, and so does not specify that there is more than one side.

When we go on to the one-article nouns, rather different distinctions appear. We find second mention forms in which the definite article is used, it is true, as in the following.

'Mary bought butter, because the butter was cheap.'

But also the second mention form can be without the article

'Mary bought butter because butter was cheap.'

With abstract nouns the limitation on use of the definite article in second mention forms is even more striking. That is, sentences like the following can not take the article at all

Men pursue happiness, but happiness is not always reached. For both the uncountable nouns and the abstract nouns, the distinction between definite and indefinite article appears clearly only if the noun is followed by a phrasal construction.

Butter which is made of sweet cream is best.

The butter which is made of sweet cream is best.

Happiness which is purchased too dearly is worthless.

The happiness which is purchased too dearly is worthless.

I should derive the forms with definite articles in these constructions from second mentions, those without article from first mentions, just as with the earlier examples of two-article nouns. The only really important difference between the two-article nouns and the one-article class, whether uncountables or abstracts, is that with the one-article nouns, definite articles are deleted for second mentions unless the first and second mention sentences are combined by embedding. The result is that often these nouns lose the distinction between identified instances and unidentified instances altogether. The situation is what leads to analyses of meaning in which the articles are spoken of as quantizing the noun they precede. They do, it is true, but it seems to me that this semantic element is secondary to the distinction between identified and unidentified. That is, for the referent to be identified, it is necessary that it also be quantized, yet the distinction between identified and unidentified appears also with countables, where quantization is always present, no matter which article is used.

The second main class of definite article use is that which I have called proximity. While the usage has been generally recognized, it has not always been very well described. Thus Sweet cited 'the door of the room the speaker is in, or is thinking of'. I should describe the meaning of this use as 'the item of the class mentioned, which is nearest to the speaker, the person addressed, or the person or thing spoken of'. I should also call attention to these contrasts:

Please open a window.

Please open the window.

In the first, the person addressed can open any window in the room. In the second he is asked to open the one nearest me or himself.

When I go home, I cross an intersection.

When I go home, I cross the intersection.

The first form leaves the intersection unspecified, the second means an intersection either near to the speaker or to the house spoken of as home.

A final pair is

When I came to call, a dog barked at me.

When I came to call, the dog barked at me.

Here the dog is the animal nearest to the objects described, even though the object is only indirectly mentioned, and the nearness is somewhat figurative.

It is usual to speak of these uses as Jespersen has, as uses in which 'the necessary determination is given by the context'. I do not particularly object to this description, but would myself again use the term identified for those forms with the definite article, and would point out that since both the definite and indefinite articles can appear in the same sentences, it is not the linguistic context, at least as narrowly conceived, that gives the 'necessary specification'. However, the fact that all these uses represent the nearest item, means that if we consider the context stylistically, that is as running over the whole of the discourse, not merely stopping at the boundary of the sentence, the forms with definite article are precisely those most likely to be mentioned, and mentioned more than once. There is then, at least a tenuous bridge between the second mention uses and the proximity uses. I think that the bridge is sufficiently passable so that we can get to one from the other, and speak of proximity uses as special cases of second mention uses. Furthermore, I think we can profitably speak of both these main uses as identified items.

The remaining large class of nouns are those that I have called the fixed usage forms, those which either always have the article, or are always without it. As has been said earlier, these include place and personal names, and as has been noticed, in pairs like Amsterdam and the Hague, article usage has to be learned at the same time the name is learned. I do not wish to go much further with these names, but would point out that I lump generic uses of nouns, whether like man, or like the horse, with names. The justification is that names are (as many scholars have said) in

some sense unique--classes of one member. When we speak of a man or a horse we are specifying single members of large classes. When we speak of man or the horse we are specifying the abstract notion of the species, which is necessarily a single member class. When it is said, however, that names are unique, it is not meant that the same name can not be applied to more than one item or person, as with John, Father, or home. In normal discourse, however, names are unique, or cease to have the syntactic characteristics of names, as with 'the two Johns', 'the homes of the great', and so on. While forms like God, the sun, and even the President are not infrequently identified with names, it is not usual to put generic uses with them. I see no particular difficulty in such an identification, however, since the semantic and syntactic distinction between individual and generic uses is well recognized. The classification proposed is no more radical than a change of name, to 'normal use', and 'name use'.

Again, as said earlier, the presence or absence of the article is simply one of the markers of particular names. I have already mentioned the uniqueness of man, as contrasted with the horse. One might also mention names for the same individual where article usage differs, as with God, but the Lord. Since I think article usage with names is no more than an identifier, I would abandon any attempt to find a semantic difference between such pairs. Notice that with the previously cited Hamlet and The Hamlet, or Queen Mary and the Queen Mary we should get very curious notions of the meaning of the articles if we insisted on associating the difference in the total name with the article which is the only audible difference.

Yet while I think that the article usage with names is no more than an arbitrary mark of identification, and is not by any means totally predictable in terms of objects designated, it should not be thought that there is no patterning at all in the occurrence of articles in names. One of the fairly general differences is that plural names usually take the article, as with the United States, the British Isles, as contrasted with America and England. Another such general difference is that names which contain an of-phrase take the article, those which are formed with a modifying noun preceding a second noun may be without it, as with the University of Texas, but Georgetown University.

These patterns, however, are no more than the symmetry which always occurs with basically arbitrary differences, and which are necessary to us if the differences are to be learned. They are not related to the general syntax and meaning of articles,

nor are they as important as the various special uses which have been deliberately omitted, like the correlative 'the more the merrier', or the absence of articles in direct address--'come here, waiter!' With a final note of caution I can conclude. In distinction to some of the accounts of articles which I have seen, I have strictly limited myself to English. I am aware that English the man translates Spanish el hombre much of the time, but it seems to me good practice to describe one language as accurately as possible, and to agree on that description, before we move on to comparison.

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Third Panel: LINGUISTICS AND ENGLISH

Chairman:

**Lloyd B. Swift
Foreign Service Institute**

Panelists:

**Stanley Sapon
University of Rochester
Paul M. Postal
Queens College
Terence E. Langendoen
Ohio State University
Archibald A. Hill
University of Texas**

Discussants:

**Edward Blansitt
Georgetown University
Ruth Crymes
University of Hawaii
William Orr Dingwall
Indiana University
Robert J. DiPietro
Georgetown University
James Bachmann
Georgetown University
Andras Balint
New York University
Alvin Kessler
New York University
James D. McCawley
University of Chicago**

BLANSITT: I would like to ask Prof. Postal about the relationship of Spanish pronouns and articles. It seems amazing that they are not more alike in view of their etymological relationship. This seems to indicate that the speakers differentiate completely between them, in spite of their similarity. In Sardinaian, for example, recourse was had to different forms, in spite of the same sort of etymological relationship. In Roumanian, the article was shifted to post-position. Secondly, I was shocked to hear your suggestion that I might really be the I. Perhaps this objections should not be directed at you, but is a consequence of the deficiencies of the transformational approach. Would you agree with the last statement?

POSTAL: I don't understand your first statement, so let me answer the second. I can't believe that you really want to say that forms that are phonologically different are therefore held to be different by speakers. This would amount to denying that morphemes can have distinct allomorphs, which no one would want to do in 1966. As for thinking that the suggestion of analyzing the I as the underlying structure for I somehow shows the insufficiency of transformational grammar, I can't believe you really want to say that, either. First, because even the demonstration that the analysis was wrong would entail no consequences for the overall analytic framework. Secondly, because I didn't even suggest that the analysis was correct. It was proposed as an analysis that was wrong, and I gave the reasons why it was wrong, and then proposed what I thought was a better analysis. So I really can't understand what you're getting at.

BLANSITT: I'm sorry - I suppose I was so shocked that I failed to hear the following sentences. Going back to the first question, however, there is no reason in Spanish why the feminine singular article couldn't be ella, so that instead of la carta you could have ella carta, no reason except that speakers of Spanish found it necessary to leave one form as ella and the other came to be reduced to la.

POSTAL: To say that 'they found it necessary' is not to say anything - it's a totally empty remark. All you are saying is 'it happened'. Your pointing out the etymological relationship does not seem to me to be a criticism, but points up an even more interesting fact. Why is there an etymological relationship between articles and pronouns? I suggest that the reason is because, in the past, the relationship was even more explicit. Still, I am not saying anything more about Spanish than that it would be profitable to make this kind of investigation.

CRYMES: Prof. Postal, it seems to me that the relationship between the article and the pronouns is even more complex than your analysis suggests. For example, the pronoun he can replace a noun phrase with the article a. For instance, 'A student must study'; 'A student must take examinations'; 'A student must do this or that'. We can say 'He must study', 'He must take examinations', where he replaces a student. Professor Hill gave the example of an abstract noun being replaced by it: 'Man pursues happiness' -- 'he pursues it'. It seems that in the replacement of a student by he, he is syntagmatically definite because it replaces an antecedent with the same referent, but it is paradigmatically indefinite or general. On these two axes, there is a contrast of identified vs. non-identified syntagmatically, and an opposition of general (not generic) vs. specific paradigmatically. I wonder how you would account for this?

POSTAL: I must admit that this comment puzzles me more than the last, since I have already shown a derivation where he is derived from an indefinite article on a boy and I have given the underlying structure as indefinite, which is turned definite by the pronominalization rules. The whole point of the paper was that this can happen. I have no doubt that the situation is much more complex than I have shown here, but it doesn't seem to me that your comments suggest it, since the case you bring up is exactly the one I did treat.

CRYMES: Perhaps it's in the way we're defining 'definite'.

POSTAL: I'm not defining it at all. I'm simply taking it to be a syntactic property which is assigned to sentences. It determines various kinds of articles and various kinds of distributions. I wouldn't know what it would mean, 'to define it'.

DINGWALL: Prof. Sapon: given your Skinnerian background, how do you explain the comprehension of the boy in your experiment, given that he could not speak the language? What schedule of reinforcement or shaping accounts for this. I should also think that you would first have gotten a shadow effect, so that instead of his producing 'I saw the cowboy', I would have expected he would say 'I-I saw-saw the-the cow-cow boy-boy', as a consequence of the SR approach you described. Finally, how do you account for his later productivity - is he still getting tokens and toys?

SAPON: It isn't easy to answer your questions, some of which involved conclusions I do not recall suggesting. First, the background of the experiment is Skinnerian to the extent that it recognizes behavior as lawful, that language behavior is equally lawful, and that verbal behavior does not represent a discontinuous

function in the uniqueness of humanity. My theoretical position reflects an increasing concern for the functional, rather than a purely formal analysis of language.

With regard to comprehension, I said in my paper: 'It should be recognized that the processes involved in bringing the organism under stimulus control (which is the way I view receptive language) have not been as refined experimentally as the processes of shaping operant or productive verbal behavior.' After the experiment, we can say a good deal more about the effect of the environment on the child, because we have controlled the environment. My only speculation here would be that, as we come to understand better, and control better, the processes by which organisms come under control of the stimuli, we will be able to say more positive things about receptive language, or understanding. At present, I put 'understanding' in quotes, because the term is that ambiguous.

Next, when you talk about SR theory, you are not discussing the kind of theoretical position I represent. In the experiment, we were concerned with building up a sound chain, an utterance of 30 or 40 syllables. In this situation, syllable #1 is a control stimulus for #2, and #2 a control stimulus for #3. Our initial concern was merely on the motor level, and these responses were under the control of my model. We then brought these initial responses under the control of other stimuli. Responses to the doll-figure, or to the figure of the puppy, for instance, were initially under the control of my model. This came under the control of the visual object itself. Then the 'puppy' and the spatial arrangement between it and another object came to control the response 'and a'. I am not familiar with the term 'shadow effect', but you will note that we did not get responses like 'I-I' and so on, because in our models, 'I' was never segmented from 'wanta' or 'gotta' and so on. We did get 'I wanna' repeated in the beginning, but the chaining process I described lead quickly to sentences like 'I see a cowboy with a red hat and a sheep and a puppy.' The experiment results in quite long sentences, but all are under the control of the properties of the visual stimuli.

DiPIETRO: Prof. Postal, rather than assigning 'nominative' as a distinctive feature of nouns, wouldn't it be more appropriate to write a few context restriction rules? What we traditionally call 'case' in the pronouns is predictable syntactically: 'I' and 'me' would then be allomorphs of the same morpheme, with 'I' occurring preverbally and 'me' in postverbal position. Otherwise, specific rules would have to be written to explain 'him', 'her',

'hers' and so on.

POSTAL: This feature of the paper is the least worked out. We are agreed that differences such as between 'I' and 'me' have to be predicted. The question is, how to predict them. You will recall that I did not call the noun 'nominative', since the form will be 'I' unless something else happens, granted it is first person singular. Since it is predictable from the sentence configuration in which it lies, it is not really true that I have set up an underlying unpredictable distinction between these features. They will be predicted by rules, I assume, so there is no conflict between your position and what I have stated.

BACHMANN: I would like to ask Prof. Langendoen if he thinks that sentences like 'It's the mailman' or 'It's my friend' fit his scheme.

LANGENDOEN: I think we could agree that these are examples of expletive 'it'. Any treatment that purports to be the paper on the syntax of expletive 'it' should cover it. Perhaps I can argue that this is pronominal 'it', since it is not covered in my scheme. You can even argue that expletive 'it' is ultimately pronominal. If it does not fit into this framework, however, then it is outside the range of my discussion.

BACHMANN: Perhaps it might fit into the locative framework: the situation in which it is used usually involves a place.

LANGENDOEN: Perhaps that's true.

KESSLER: Prof. Hill, I was wondering what you would think of the possibility of looking at your 'second mention "the"' as always being a sign of a restrictive clause, either present or deleted. Secondly, as a corollary, I was wondering whether you have looked into what are the particular factors which govern whether restrictive clauses are identifying or non-identifying. For example, I think of two sentences, such as 'The man whom I saw yesterday was here' and 'The man that asks shall receive'; the second being a 'generic the' and the first being the 'identifying the'.

HILL: The occurs with both restrictive and non-restrictive following clauses. Note:

The man who spoke violently was ejected.

The man, who spoke violently, was ejected.

I think it is also possible to find examples of indefinite occurrences with both types of clause. Note:

Girls who are beautiful are always young.

Girls, who are beautiful, are always young.

As to identifying generic the's, I think Mr. Kessler has slightly

misunderstood me. My term was identified occurrence of the referent, not identifying article. In the sentence 'The man whom I saw yesterday was here', I should describe the source sentences as

I saw a man yesterday.

The man was here.

The first sentence has been embedded in the second. The second sentence 'The man that asks shall receive' can be derived from

A man asks.

The man shall receive.

Once more the first sentence has been embedded in the second.

BALINT: I remember that Robert Allen, in his doctoral dissertation in 1962 analyzed articles as 'identified' and 'non-identified', suggesting three ways of doing this in English: by the indefinite article, by a zero morpheme and by the use of 'some'. Would Prof. Hill agree with the inclusion of 'some' in unidentified uses?

HILL: 'Some' is an unidentified form, used with an unidentified noun. I have seen numerous statements that 'some' is the plural of the indefinite article. This seems faulty to me, since you can have both 'some' and zero, occurring side by side, thus forming a contrast. However, I know of the treatment of indefinites to which you refer, and it is obviously right.

BALINT: After hearing Prof. Postal's paper, I was reminded of the book, 'The Games People Play' and I thought that transformational grammar is the best game yet invented for linguists. As long as we regard it as a game, we might come to some interesting conclusions about language, but the rules of the game lead us to statements that have little relation to reality. At that point, we must ask if transformational analysis is the only approach to linguistic analysis, since it takes us through 26 or 42 or whatever number of rules to arrive at a very simple statement, or to arrive at non-English usage, as in Lt. Fraser's paper.

POSTAL: It's very easy, when presented with an explanation, to say 'Well, the facts are very simple, and what you give is very complicated'. It's cheap to say that. When you can take the facts that are handled in this very complicated way and handle these same facts in a simpler way, I'll be the first to accept it. When you just say that it can be done in a simpler way and you don't do it, I don't take that very seriously nor do I think anyone ought to take it seriously. That remarks like this are made again and again, with no support or justification, and with no attempt to do the job in a simpler fashion is, to my mind, a sign of how far from

being a serious field linguistics is. As for the alleged mistakes in Prof. Fraser's paper, typically, you give no evidence. Indeed, you don't even cite examples, so that this remark is, again, empty.

BALINT: Remaining on the 'play' level - I didn't start it - my remark was occasioned by your dismissing Prof. Allen's analysis of the articles and pronouns. I think he has spent about 12 years writing his dissertation and collecting facts. If you study that analysis you will find it presents a more acceptable case for the replacement of the traditional use of pronouns that you have suggested here. I don't claim transformational analysis has no relation to reality. I sometimes find the analyses superficial because it doesn't take into account occurrences in reality, and when this happens, we're told the rules have to be changed. Remarks like mine would not be called for, were more study and analysis given, before a paper is presented.

POSTAL: I don't understand that. I certainly did not mean to disparage Prof. Allen's work, and you'll recall that he was one of two people I mentioned as having advanced our understanding of pronouns. I accepted his notion that a pronoun does not merely replace a noun, since what are normally referred to as pronouns in that context replace all noun phrases. I accepted that part, but found his analysis wanting, because he failed to notice that these forms are really definite articles. That is my claim. Your contempt of the process of discovering errors, finding better hypotheses, reformulating rules so that they are more adequate, etc., seems to me incompatible with actual research inquiry.

McCAWLEY: I would like to remark on Prof. Sapon's paper. I was impressed by the spectacular results effected on the child he worked with but I am somewhat mystified by the generalizations he draws from his work: namely, the proposal that his methods could be extended to apply to normal children. I see no more relevance of this proposal than that normal children could be taught to walk faster by giving them crutches. Could Prof. Sapon suggest any way in which his methods could improve the acquisition of speech by normal children, which seems to proceed spectacularly well without any outside intervention?

SAPON: The kind of procedures we followed are not at all analogous to the use of crutches in teaching normal children to walk. The 'spectacular results' proceeding from normal environment, in speech acquisition, I find grossly overrated. A recent review of the literature says that most children acquire firm control over their language very rapidly, usually between the ages of

one and five. Some (e.g. George Miller [see footnote in the paper]) say, in essence, that a child, raised in an environment where human language is spoken has the necessary and sufficient conditions for his becoming a competent speaker of his language. I challenge this. Some children learn soon and well, others late and poorly. Looking at first grade admissions, we can conclude that the age of six qualifies about 80% of our population for admission to school, because they have then reached a stage of verbal behavior that permits them to interact with their classmates and teacher verbally. This is far from spectacular performance. While the controls used with Michael in the experiment are a kind of concentrated application of the procedures that take place in the normal world, remember that we were dealing with six hours vs. ten years. It is a myth in linguistics and foreign language instruction, that the child works constantly at learning his native language from one to five. I think this myth can be challenged. Consider the life-experience of a child in the most crucial period, from twelve to eighteen months, for example. One of the requirements for acquiring an interactive form of social behavior like language is the presence of another, attending, selectively responding human being. Such contacts are so rare in the child's life that it is far from the kind of 'massive experience' we have supposed he gets. This supports my condemnation of the 'natural' environment as the superb learning context for foreign languages. I characterize it as random and haphazard and there seems to be universal agreement about this. The child gets minimal, non-instruction-oriented attention. A child often gets no encouraging reaction from his linguistic activities: he is often punished for them, as when an insistent child produces a beautifully formed sentence about wanting a cookie when Mother is having a bridge club. No reinforcement is given for his superb articulatory control and excellent syntax.

Learning does not take place without teaching. What we call 'learning' without teaching is the result of random contingencies in the environment. A child learns about gravity without the need for human intervention. But some learning requires human interaction, and language is one of this type. Considering the bewildering randomness in the natural environment, I am convinced that if we got 'spectacular' results with Michael after six hours of scheduled, planned, carefully thought-out behavioral control, we are likely to get the same kind of results of normal children under similar controlled circumstances. Our experiments have proved that you get what you pay for: three cents of effort in teaching a

child language can only produce three cents' results.

PANUNZIO: I noticed in the singing or echoing, that you maintained your original tone although the child replied on different tones. Prof. Sapon, should not the tone levels have been shifted to those of the child?

SAPON: This is a question of priorities, and in my own self-made hierarchy of values, I had placed precise intonation at a lower level than other elements. We were aiming only at intelligibility in the kind of situation we had constructed. After a longer period of time, we could have focused on this parameter for shaping to normal levels.

LINGUISTIC DESCRIPTION OF SIGN LANGUAGES

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It is a tribute, I think, to the success of this kind of meeting of our craft to reflect that the circumstances making possible this paper grew out of the Saturday luncheon meeting at last year's Round Table. The back of my chair was almost touching those of Tom Sebeok and John Lotz. As a result I have a copy of Lamont West's Indiana University Thesis 'The Sign Language', have met and corresponded with West, and have received his promise to revise and publish his thesis. There are close ties also between the Round Table and the Washington Linguistics Club, and this conjunction brought me this month a chance to explore the linguistic description of sign languages with the Columbia University Linguistics Seminar. Robert Austerlitz and John Lotz arranged not so much an audience for an invited speaker as a learning situation for a visiting linguist, including a look at a film on Plains Indian sign language.

These and other meetings all lead into what I would like to consider with you this afternoon: what has been done about describing sign languages scientifically, how well has it been done, what further ought to be done, and why.

The time span for all this is not great. The year 1960 is the date both of Monty West's thesis, which describes the sign language of the Plains Indians (I. S. L.), and my own monograph (O.P.:8 of Studies in Linguistics) 'Sign Language Structure', which describes the sign language used by most of the North American deaf

population (A.S.L.).

Since then West has been in Australia studying the sign language of the aborigines and has returned with ideas for modifying his description and notation. I wish he could be here to speak of it himself, because I must confine my remarks to his 1960 work and may not do justice to his later views. Also since 1960, with two invaluable co-editors, Carl Croneberg and Dorothy Casterline, both deaf tri-linguals (Swedish, English, A.S.L. and English, A.S.L. and Hawaiian Islands Pidgin), I have compiled A Dictionary of American Sign Language on Linguistic Principles. (Gallaudet College Press). The dictionary, published on 10 November 1965 lists nearly three thousand morphemes according to their elements and in introductory and appended essays gives our latest findings on the morphemic, syntactic, semantic, and anthropological aspects of A.S.L.

Whenever modern linguistics began, it found ready to hand a useful tool in the I.P.A. Independently, West and I tried to fashion alphabets for the sign languages each of us examined some time ago. I think we both would now like to develop a notational system that would work with any sign language.

Here the difference between us shows up. He would call it the international kinemic alphabet. I would call it cheremic instead of kinemic. He took the term from Ray Birdwhistell's Kinesics, where it is used for any isolate in communication systems auxiliary to language. But in the case of a real sign language the isolate is the element of language itself, auxiliary to nothing, but governor of all the other cultural systems. I coined the term chereme, /ker+iym/, to indicate precisely that sign language is a separate system not to be confused with kinesics. To avoid unwanted connotation with chiropody and cheiromancy, I chose, not the base ker as model but the Homeric adjective cheremis meaning 'handy' among other things.

Considering the structure points or isolates of I.S.L., West finds five classes of kinemes. Considering A.S.L. I find three classes of cheremes. The luncheon table is not the place to dissect the languages in question and compare the two descriptions, but some general observations may be offered. Of course you understand that here I offer them as a critic looking at the work of West and of Stokoe impartially.

West's description and analysis are very fine indeed, but I think that his notation is too detailed, symbolizing both contrasts that are significant as phonemes are and other differences that may be stylistic or metalinguistic. Again I wish him here. I be-

lieve his recent work on Australian sign language applied to I.S.L. would make the notation more analytical, less detailed, and that it may be useful for doing the 'phonetics' as it were of all sign languages. Stokoe's analysis and description are often represented only by the results. The notation is more analytical than detailed, though sometimes allocheric differences are given contrasting graphs. If West includes things from without the micro-linguistic perimeter, Stokoe very likely misses things inside it.

Here for example are the two systems of notation used for the signs that translate 'eat':

I.S.L. (West)

A.L.S. (Stokoe)

Reading West's first, the first symbol is for the hand shape made by gathering the fingers into a point. The second indicates 'toward the signer'. The third symbol with a superscript denotes the signer's mouth; the m is for a curved motion; its diacritical mark indicates the motion is from the wrist. The penultimate symbol again indicates 'toward the signer', this time the motion is so designated. The last symbol and the superscript dot indicate that the sign ends with a short downward motion.

Reading the other, the first symbol, suggesting the chin line, denotes the lower third of the signer's face. The second symbol denotes a hand shape (dez) chereme with one allocher made by putting the tips of all the fingers on or around the thumb. The final symbol indicates that the dez chereme, the hand, approaches the tab chereme, the face; and the dot shows that the motion is repeated. The subscript on the 'o' indicates that the palm of the hand is toward the signer. There is no need to indicate which allocher of the dez hand is meant here, because the place it has to go (tab chereme) and the motion it makes (sig chereme) determine the choice.

I can see an advantage in West's system of notation, he may not even have seen. It renders sign language pronounceable. 'Eat' is /t̪lmóy/ or /t̪lm̩/. Of course the whole lexicon of I.S.L. may produce, under West's rules some unpronounceable items, but for discussion it would be generally superior to tab-dez-sig cheremic system.

On the other side (one who lectures in sign language is using both hands anyway), the cheremic notation is quickly learned. Native signers visiting the office where the cheremic symbols were listed on the blackboard had only to show curiosity, get five or ten minutes of explanation, and try a few examples, to leave

knowing how to read or write any sign they knew. No blackboard comes with the new dictionary, but the symbols are listed on the endpapers.

Let me drop the pretense of impartiality, which suits me badly; besides, there are other ways of getting at sign language. One of most attractive effect, is in a color movie. I had a look at one such prepared by the University of Oklahoma, when I visited the Columbia University Linguistics Seminar. There were plenty of questions, objections, disputes, and dissensions when I finished talking. But at the end of the movie the only question came from John Martin Lotz, age seven: 'Are those Indians real?' I think I know exactly what he meant. If he stayed up late enough to catch a TV vignette of a distinguished Senator answering a newsman's question, he might have asked 'Are that voice and that hair real?' There is a certain orotund flavor to the I.S.L. as filmed. The folklorist would have no trouble identifying it as the style received along with the text. Of course the producer of the film has the informant-actor naked to the waist, in paint and feathers. Fine! This is all part of the data. I play the musical instrument named the Great Highland Bagpipe, but when I play it in public, and even more so if 'a chiel's amang ye takin' notes', I make sure I'm dressed in kilt, doublet, hose, shean dhu and a suitable fierce expression of face. Like John Martin Lotz I still want to know whether the I.S.L. is used to order groceries, give directions to the freeway, tell children to be seen and not heard, and utter sweet nothings.

Seriously again, the I.S.L. film proceeds logically and lexically. As the narrator says a word, the marvelous actor-informant makes the sign with a face that any poker player or cigar store Indian would envy. After several signs have been introduced, repeated, and reinforced in the best Skinnerian fashion, the actor uses many of them in a short articulated discourse. There is a suitable delay, and the translation (superfluously) comes over the sound track.

The reason I would answer, 'yes' to John Martin Lotz' question is not on the sound track. When the actor changes from giving signs in a list to 'saying' something in signs he uses a sign never introduced. So far as I know West does not describe it. Nor could I represent it adequately in either notation. It is a morpheme all right, but with such diverse allomorphs that it would require four or five symbolizations. Its meaning however is clear to a student of A.S.L.: 'full stop', 'period', 'end of utterance', 'place to interrupt if you're so minded'.

This juncture morpheme in I.S.L. not only shows its identity with the same morpheme in A.S.L. despite its protean forms, but it also indicates a noteworthy feature of I.S.L. Either the real Indian actor-informant is using a special style because he is on camera--a likely supposition as the same thing happens when an A.S.L. informant knows his performance will be specially regarded or filmed. Or else the I.S.L. is limited to certain more or less formal situational uses: the annual gathering of Plains tribes speaking mutually unintelligible languages, the entertainment after dinner in the tepee, or the tales the grandfathers tell the children.

At any rate, this juncture morpheme and a number of other things I saw in the film nourish my hunch that I.S.L. and A.S.L. are very closely related languages or are even dialects of the same language. This is quite opposite my conclusion after several months in Britain in 1961 that the sign language used by the deaf there is different from A.S.L. on all structural levels. Again, I know from sign language conversations I had in Paris that A.S.L., brought to this country from France in 1817, has diverged so little from its parent stock in 150 years that an American signer knowing no French and a French signer knowing no English are as close linguistically as a Californian and a Yorkshireman.

The whole question of sign language classification and of dialects is a broad and pressing one. William A. Stewart of the C.A.L. has asked us whether the Negro deaf in the United States, especially in the south, may have a dialect more or less distant from the variety of A.S.L. presented in the dictionary. Indications are that at least some A.S.L. signers and some Negro deaf signers from the deep south cannot understand each other. But how many are the users of this remote dialect or dialects and who and where they are baffles us as well as experts in demographic, public health, and social surveys.

Satisfying answers to all such questions await the further description of sign languages. It is not enough to note lexical differences. For instance the I.S.L. sign for 'man' is different from the A.S.L. sign for 'man' but identical with the A.S.L. sign for 'someone'. A number of other correspondences of this kind suggest here very similar cheremic structures and morphemic structures with a semantic shift that promises to be interestingly patterned. But what of syntactic structures?

Less than a month ago I was saying that we have a lot more to learn about writing sign languages before anyone can begin writing

rules for rewriting them. I still think that statement is true, but I am less hostile to transformational or generative methods for two reasons, both metalinguistic. Besides trying to describe a sign language and to use it I have tried translating one extended text--the 'Don Juan in Hell' coda to Man and Superman--into A.S.L. May I suggest that literary translation is a good finger exercise for both structural and transformational linguists. My own experience in this is slight compared to that of Dean George Detmold who has translated, produced, and directed numerous plays at Gallaudet College in A.S.L. and even now has Iphigenia in Aulis in rehearsal.

When one is translating for the stage, it is necessary to eliminate all fingerspelling except of necessary proper names, because fingerspelling, a hand-shape-for-letter, one-for-one code, is of no more use on stage than internal monologue. It is also necessary to arrange the signs in sign language order and not as they would stand in a sign-for-word translation of an English sentence. For, note that in the communication of deaf persons, 'sign language' can be 'signed English' with signs for words, or 'real' sign language, or a kind of creolization of the two. Really proper 'signed English' requires the use of fingerspelled words, particles, articles--parts of English structure that sign language handles otherwise. But fingerspelling is ruled out, for the reason mentioned. The dignity of such works as Oedipus, Hamlet, Othello, Medea, and The Trojan Women requires the real sign language; for the English-sign creolization so useful in other contexts would have a burlesque effect.

Yet for all the Dean's experience and my linguistics our translations often contain sentences that are not accepted, that subliminally trouble or positively baffle the actor. What happens then I have seen, and he has often reported to me. He and the actor, or several of them, or the actor alone turn it around, rework it, try it out, until suddenly it clicks and the translation is perfected.

Here is one example chosen from some twenty noted by the Dean in the current play's rehearsals. The speech ran:

'I
[] [x] need
Ø X^v
not
Ø B^f B[÷]
act.¹
Ø C C[<])

All these signs are in the language, but this concatenation of them does not suit the A.S.L. signer. After more or less of the usual puzzlement,¹ it became:

$$(\emptyset B_o^{\neq} B_o^{\div} \quad \emptyset X^V \cup G^D [] G^X \emptyset _V C_o _V C_o ^{>})$$

'(It is) not necessary for me (to) act.'

As often as it happens, this kind of operation by native signers makes us realize how little of this language has been described. Reflecting thus and discussing with the Dean several more recent occurrences he had noted, I recalled a startlingly simple idea. It is that there is a kind of mathematical model of syntactic structures that lets a linguist reject all occurrences of language as data and enables him to describe instead exactly this competence of the native speaker.

Now that is exactly what we want to know; and if anyone wants to undertake to explaining how a native signer rejects ungrammatical sentences in sign language and generates grammatical ones, I'm ready to offer all the cheremic and morphocheremic results we have that he can use. There is too much to explore inside and around sign languages for us to keep the mathematicians out. This invitation is also extended to anthropologists, statisticians, psychologists, sociologists, and especially to students and colleagues in the Washington Graduate Consortium.

It would certainly be interesting to see whether the ultimately morphocheremic rules would generate the same kind of surface structure as that which West and I have been picking away at with our taxonomic hammers. But while waiting for the answer to the ultimate question--just what does a native signer know without knowing he knows it and how does he?--we may consider other questions. Could not contrastive grammar materials facilitate teaching English to a signer who never heard it? Or teaching sign language to an English speaker who had not thought that language could be other than sound? What are the psycholinguistic and sociolinguistic concomitants of sign language? Its users are in some ways more closely fitted into our society, though with a language barrier, than some peoples whose differences appealed to Whorf and the SSRC. Even a kind of diachronic linguistics may be possible soon. If my hunch is right and A.S.L. and I.S.L. are pretty much alike; how did they get that way? French sign language came to America officially in 1817. Could it have come over much earlier with Jesuit missionaries who learned of l'Epee's work in the 1750's and 60's and expected it could be used in communicating with the savages? Another point of contact is more certain: there is at least one revelation that 19th century Indian experts made extensive borrowings from A.S.L. so that I.S.L.

would be better able to deal with 'abstract thought'.

West thinks, along with many who have given sign language less study than he has, that sign language, perhaps by its very nature as motor activity, is bound to have a preponderance of onomatopeia. I think that by its nature as language it is bound to relegate onomatopeia to the same negligible place it generally fills in languages. Further research will have to decide the point. And further research whether of the kind named by a prefix to linguistics or of that called linguistics, will need a frame of reference. In conclusion I would commend to you the frame of reference we heard so masterfully reexamined yesterday. Linguistics is still linguistics; and all that we know, for sure, about sign language has been discovered within that frame.

FOOTNOTE

- 1 In another context this string of signs could have translated 'I must not act'.

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