ANALYTICAL SYNTAX FOR TEACHING ENGLISH (5)

— a non-native approach —

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Chapter VII Proposed Curriculum Outlined[1)]

7.1 Premise for the curriculum

As indicated by the title of this essay, the discussion in the preceding chapters has been less on the language called English and more on how it should be taught to, or learned by, non-native subjects; the contemporary Japanese in particular.

We consider that non-native language-learning is a linguistic affair to the learning individuals, in spite of the fact that any foreign or non-native language is to him an 'anti-language' or even an 'anti-logic' *until* and *unless* he attains some degree of mastery and experience therein. This statement apparently contains an inevitable paradox. It will be more precise, therefore, to say that the process of learning may be unnatural, that is, un-linguistic, while the skill and experience obtained thereby could be fully linguistic and relatively compatible with and comparable to that of the native language.

In the belief that human 'reasoning' is universal in spite of the linguistic surface differences of the languages and of the unnaturalness of the learning process, we place the base of our pedagogy on the 'reasoning mentality' of the learners. We exhort that recourse be made to the reason and intellect rather than to the instinct and reflex of the learners as well as of the teachers and our concern over the efficiency of the process is here only second to this fundamental policy.

As the traditional or native-analogue way of teaching has its advantages and disadvantages, so does the non-native approach; what is important here is the fact that the advantages as well as the disadvantages are different in kind between the two approaches. The non-native approach does not necessarily promise a better effect or higher efficiency of teaching; it only presents another view, another aspect

1) Continuation since Vol. 21, 1971, of the present publication.

of foreign-language teaching so that a still better and more 'reasonable' approach may be found.

The present chapter, proposing a tentative plan for a sample-curriculum, will take up only one of the various aspects of the subject, namely its syntax, relegating elsewhere all the other aspects; the cultural and semantic implications, phonoloy and orthography, etc., are to be taught, separately, along with the syntax here, or by a separate curriculum for each of them, parallel to, or at best, in close coordination with, each other. In the proposed curriculum, a word, for instance, may be introduced as a member of a certain syntactical category; with or without what it means in actuality, or with or without how to spell or say the word, or with or without what kind of feeling it traditionally accompanies, and how it is actually used by the native speakers in the native community at a certain historical time and location. In a word, this chapter will cover only the algebraic aspect of English and how it should be taught for its own sake.

The curriculum does not intend to make every and all the learners attain the ultimate perfection, the native or native-like competence, and yet the process should be meaningful to the learners at each step. The solution for this seeming paradox is given by leaving the designation of the level of intended accomplishment, i. e., the level of approximation or the versimilitude of the acquired language, optional. We measure out the pitch and dosage of the curriculum by counting backward from that goal realistically set according to the purpose and environment of the teaching. If to make an adult learner attain a level of, say kindergarten fluencey, with 300 working hours, the dosage may be automatically set only if there is a standard curriculum available.

The image of a curriculum should be, therefore, a table of the matters to be taught, arranged in the way the programme for a given purpose (the level of approximation desired, for instance) could be meted out from it. If such a scheme is accepted, it may be possible to express the efficiency of teaching in terms of the time consumed, and the level of skill or mastery attained, by the inverse ratio of the time required in producing the result prescribed. To use the parable again, the kindergarten fluency attained may be equated to an inadequate mastery of a college-level content; the curriculum should be something which allows such quantitative calculation and enables us to estimate the accomplishment of the process by something better than the degree of sheer mimicry of native fluency.

After all, the curriculum here proposed is an imaginary table which will provide the basis for calculating the dosage of teaching for various types of purposes and degrees of attainment desired. The considerations, therefore, for the actual technique of teaching, for the materials and aids to be used, for the teaching individuals and for

the learning individuals, etc., are excluded in the discussion to follow.

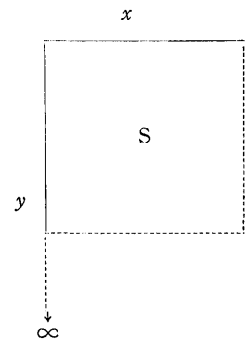
7.2 Frame-work of the curriculum

Since we do not know the ultimate state of affairs called language, the pursuit thereof may be an endless accumulation. This accumulation is ever subject to a complete reversal upon a chance discovery or by an addition of a new item. As an applied science, however, language teaching may be fabricated on a preconceived model of a 'finite and ideal state' of language and we propose that in so far as non-native language is better fit for this kind of handling, the curriculum here is first conceived with the ultimate body of the subject to be learned as an 'ideal' not a 'real' system that would seem reasonable to anybody, non-natives included.

The content and system of the subject should be deployed in a way *simple, consistent* and *explicit* for any intellectual perception so that the algebraic calculation therein should be possible and reversible. Then the curriculum will be drawn from that self-explanatory structure more or less inevitably.

Thus the most general model of a langauge may be symbolically expressed as an area defined by two coordinate terms—one, definite, the other indefinite (Fig. 1). In the figure below, S stands for the totality of the subject, the language, which is the area defined by x and y where x is finite in length and y consecutively infinite.

Fig. 1 Primary model of language



We then ascribe every obligatory and inevitable feature of the subject to the finite abscissa x, while relegating all the optional and consecutive items to the ordinate y, the variable. In a way of explanation, we might recall a parallel. Arithmatic is a kind of cosmology where only two pairs of calculations are being performed, both containing two opposite vectors; thus on the one hand we have addition and substraction while on the other, multiplicaion and division, and the structure of the four constitutes the 'analytical syntax' so to say of arithmatic. Those items belonging to the y-axis may be likened to the numerals which also have a structure of their own, i. e., there are only ten elements to express any number with the aid of the auxiliary rules for digital combinations.

Admittedly this is altogether too simple a model, yet how to distinguish that which is to be assigned to x and to y may remain an endless problem in itself. The difficulty here, however, is simply due to the fact that we have the real language, in our case, English, in mind. If we were to design a new system of code for any commu-

nication, obviously we should first purposefully set this kind of basic plan no matter how complicated and sophisticated it is going to become. The curriculum may be then drawn from this radical plan more or less automatically. The first-degree model of our curriculum, therefore, will have a minimal syntax and a set of minimal vocabulary items to be employed. Unlike a real langauge where x may not be fully finite nor y altogether infinite, we could here arbitrarily decide on the content, that is, not *after* but *toward* the real, eventual living language. It is thus well to recall here that we are not working *after* the absolute reality, but working *toward* an optional end-product, which makes the matter entirely different but no less manageable for us.

The basic policy for assigning the items to the x-axis should be that the items be interdependent and complementary so as to constitute a whole together, no matter how few and simple, or how complicated and numerous. Whenever an item is to be introduced, it is incorporated in such a way that it affects the entire system—in other words, the items there are deployed as dividents of the known whole. In actual administration, the items may be added consecutively but the process should always be carried out with an anticipation of the eventual closure at the completion of the process in sight. In a word, the basic principle by which to designate items to the abscissa is that which we have so far advocated, namely, 'analytical syntax' in its proper sense.

The practical problem and difficulty for us here is how to arrange the inter-related features, though arbitrarily, to the two linear coordinates for the expression and formation of a convincing, therefore effective, representaiotn of the language upon which to construct the feasible and inevitable curriculum. The problem needs further considerations and adjustment as the factors assigned to the coordinate axes are in reality each not in single dimension, i. e., they themselves have their own structure not at all one-dimentional. The simple model shown above is thus only a symbolic expression of the situation involved. We could perhaps venture another analogy to express our solution. One of such devices may be to draw a 'line of congruency' by means of which we can relate the readings on the two perpendicular axes by way of some commensurable terms.

Once such a basic model is established and accepted, the curriculum will be drawn therefrom with a set procedure throughout. In the beginning, the anticipated items on x are to be taught with a minimum of extention toward the y-direction. Upon the completion of the process, another degree of depth is added to the ordinate and thus procedes laterally until it covers the entire length of the abscissa, and likewise to the desired degree of accomplishment. The degree of accomplishment—which is here also the degree of approximation of the acquired product to the natural, real

langauge—is expressed by the reading on the ordinate, as that on the abscissa is constant. The degree of skill attained, the measure of freedom obtained, the amount of expereience or the depth of conviction in the feeling, etc., of the learners may be expressed by the relative time required for the performance. This is like the assessment of the degree of mastery and command in performance of arithmatic; it can be expressed by the magnitude of numerals being handled at ease by the learners at a given time, and the time consumed in the calculation.

With such an over-simplified frame underneath, we might venture a little farther into the actual designing of the curriculum, or in our case, the simulated language designed after the real English we ultimately want to teach or learn. In the sections to follow, a reduced model of the language deployed over the frame-work sketched above, with some details, will be presented. 7.3 will cover the affairs belonging to the abscissa, which actually is a re-arranged presentation of the main body of the present essay, 'analytical syntax', laid out as a guide-line for curriculum formation. 7.4 will discuss that which should be assigned to the ordinate, the vocabulary, which is organized into a lexicon for easier retrieval and for innate grammar references. 7.5 will re-introduce what has been presented as paradigms, i. e., the structural formula for syntax, while 7.6 will in main present what has been anticipated as 'synthetic grammar', the potential features of words in different environments or their manifest idiosyncrasies in their relationship to other words. These last two constitute the said 'line of congruency', the middle term by which we relate the two fundamental coordinates x and y of our basic plan.

7.3 Analytical syntax proper

The finite facet x of the model represents the structural abstract rather than the surface phenomena of the language given. The underlying operaitonal dynamics of every piece of valid, accomplished speech, namely the sentence, is conceived as formulatable in terms of its constituent members, i. e., syllables, and of the mode of their collocation—the affairs we have been treating under the name of 'analytical syntax'.

The very first product that such analaysis yields is ironically a species of subject that defies such analysis, an inarticulate and indivisible whole, but neverthelss complete or effective—that which we called 'embryo sentences' in an earlier chapter[2]. Thus the minimum syntax deployed over the x-axis is that for embryo sentences each a continuation with no internal segmentation.

Here instead of an inventory of the internal elements, embryo sentences have for their y-dimension nothing but actual incidences of such full, unanalyzable expressions

2) cf. pp. 14-16, Vol. 21, 1971, of the present publication.

(*a*, *b*, *c*, ...). They are *bona fide* sentences, regardless of the shape, structure or the meaning, and there will be infinite numbers of such examples. The curriculum, therefore, should enumerate such examples available for use on an endless list in whatever the order or manner of sub-classification desired, and as many as practicable and suitable for teaching.

Fig. 2 Model for embryo sentences

whole speech

a
b
c
d
e
⋮
∞

Now if we find an accomplished piece of speech, but not of the kind above, that is, analysable in some terms derivable from the totality of the syntactical whole, we have there an articulate sentence, instead of an embryo sentence. The articulate sentences emerge into our ken on the second layer of the abscissa, below the level of the inarticulate embryo sentences. The deployment of articulate sentences over the abscissa x, is to be done in a set procedure. Valid pieces of speech materialized in articulate sentences are analysable in two ways, first by the type of the basic meaning, the motivation, second by the mode of the inner structure, both analyses being done in terms of speech syllables.

The very first distinction made is the four isotopical formulas corresponding to the four types of speech motivation, i. e., 'imperative', 'demonstrative' (or 'declarative,') 'interrogative' and 'exclamatory'. We could consider these expressions, once embodied in language, as different in syntactical formation, but we find it better suited to our purpose to consider them as corollaries of a single formula. So whenever we find an articulate sentence in any of the four of its variants, we are automatically reminded of the other three isotopical formations. The mutal relationship of the four enate corollaries may be symbolically conceived in the following arrangement (Fig. 3).

Fig. 3 Four isotopical sentence types

	I imperrative	
III interrogative	II demonstrative	IV exclamaory

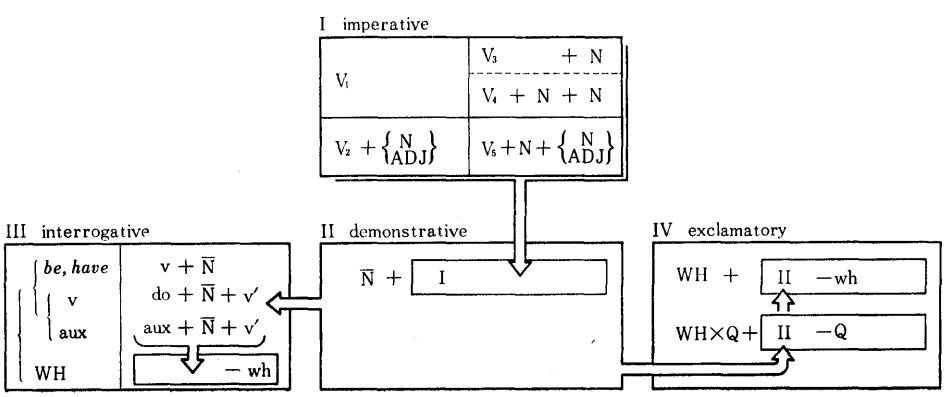
The paramount position is given to imperative expression as every imperative as speech is situation-bound at each incidence, while the other three types being situation-free, representational expressions of the owner of each speech, and understood as such by the receiver[3]. As the curriculum, this may be presented to the learners as a universal phase every language shares as it is the basic phases of human behavior and psychology.

3) *ibid*, pp. 16.

The real syntactical features particular to English set in as these isotopical variants are related and distinguished not so much by the type of the speech motivation (the meaning, in a broader sense) as by their inner structure particular to English. The immediate terms of analysis for articulate sentences have been asserted as categorical modules called speech-syllables in our proposal. The syllables are the immediate and maximum constituent members of a unit sentence derived or derivable from the given totality of the expression. They are of four kinds, Nominal (N in our symbolism), Predicate Verb (V, likewise), Adjectival (ADJ, likewise) and Adverbial syllables (ADV, likewise). Our assertion has been that sentences are constituted of these syllables, conceptual and intermediate categories as they are, rather than of individual concrete words and their groupings on the surface and also that sentences are distinguishable from one another in the way syllables are employed and arranged. The corollaries of any sentence are also obtainable by re-arranging—transforming—the component syllables, or inversely, they are known as such by the procedure through which they are derived from one another.

Articulate sentences, no matter in which cast of the isotopes, are each inevitablly in one of the five 'patterns' depending on the kind of verb employed for their Predicate verb syllables, and on the subsequent arrangement of the sentence in terms of the number, kind and order of the syllables there involved. Thus according to the sequence in which we have proceeded in the discussion of the syntax in earlier chapters, we first determine the imperative structure which inevitably falls into one of the five patterns corresponding to the type of verb used for V, or the Predicate verb syllable. (This also is the pedagogical reason why we gave a privileged position to the imperative formation in the figure above.) The imperative stuctures, in five patterns, are found repeated in the demonstrative structure with one N element added at the initial position (the symbol $\bar{N}$). The diagram below represents the inner structure

Fig. 4 Sentence patterns for four types of expression



of the five patterns of sentences for the other four isotopical types, or the corollary sentences.

The scheme might appear already too complicated, while we do not even know what kind of linguistic substance is to replace the symbols. Our pedagogy here is such that instead of defining, it provides the items *in kind*; that is to say, for the index 'V', the curriculum will give a glossary of actual words (or formations that can be of the same function) ear-marked 'V' or 'v' as the case may be, and likewise for other clues and indices.

Pedagogically, the minimal syntax may be seconded with a glossary or vocabulary containing only words. Thus, for N, the glossary should contain nothing but individual words that are themselves nouns in the traditional part-of-speech designation; for 'v' likewise only verbs (not the phrasal verbs) and likewise for ADJ and ADV, the last of which may be inserted *ad hoc* between the constitudent syllables of any sentence without affecting the sentence pattern. The single-word syllable sentences across the four varianats in five sentence patterns will alone give an ample scope for practice: there will be twenty variations of sentences to be practiced. Any addition to the membership of each glossary will multiply the range. Symbols 'WH', and 'Q', raw vocabulary items such as /do/, /have/, /be/ (italics in the figure) as well as lexicon-heading 'aux' need explanation before they may be introduced and practiced *mutatis mutandis.*

The size of glossary for each syllable (at this level, syllables are immediately connected to 'part-of-speech' designations of the lexicon without going through the intermediate levels) may be measured and dealt out to suit the mental readiness and capacity of the learners. The syntax may be given out as complete and closed with the formal representation above. The practice should be prescribed and administered with the proper amount of glossary items assigned to each syllable. We could also introduce negative transformation to all the formulas above by the following prescription.

Fig. 5 Formula for negative transformation

prohibition		*Don't*+imperative (I)
negative of II~IV	V { *be, have*	v+*not*
	V { v.	*do*+*not*+v′
	V { aux.	aux.+*not*+v′

The negation is considered here as syntactical since it affects all the formula so far delineated, even though it could also be considered as a matter of meaning and of

grammar. It is only from pedagogical consideration that it is presented here.

Finally as the third layer of the syntactical facet, we could include here such transformational procedures as ommission (deletion, contraction), inversion, insertion, apposition, quotation, substitution, ankilosis and perhaps intended solecism, etc. These are all explainable as diversions from the norm formulated above.

Having come thus far, we could reconsider the embryo sentences in a different perspective. Where the motivation is obvious and conscious, every embryo sentence may be classifiable into either of the four types of expression and at the same time it may be reinterpreted as a portion of the suppressed full sentence.

7.4 Vocabulary and Lexicon

That which should most duly be deployed over the infinite extention y, is vocabulary, the entire body of the lowest units of morpho-semantic combinations conventionally accepted as words. To recall the trite parable a few sections above, what the vocabulary items are to a langauge is what numerals are to arithmatic. Our pedagogy decrees that instead of defining what is a word, it should provide a ready-made inventory of those which we find convenient to handle as words.

If there were only one type of syllable, instead of four over span x, the vocabulary could be arranged in a single file under a heading, say 'v'. The membership of the file could be expressed by the length of y, hence the total scope of the language would be expressed by xy; and x being here a single unit, its value would be set by the population of the vocabulary. Thus if imperatiave were the only mode of expression known to the learner at a stage, and the given vocabulary were of only one kind, say 'v' as above, with the prescription that the items under the heading are such that they may fill the predicate verb syllable 'v', of a sentence, in this case, imperative exclusively, the learner is guaranteed of the fact that as long as he employs the vocabulary items from the given glossary, 'v', in this case, in compliance with the requirements of the syntax, 'V', accordingly, the product he gets is always grammatical, thus valid and effective. The so-called 'verbs' arranged in a file in whatever the sequence chosen may serve as a sufficient vocabulary inventory, even though some may be more convenient than others as the arrangement of members for retrieval. Such is the simplest possible mode for the vocabulary imagined[4]. But we have four kinds of speech syllables, instead of one, and even if we decree for a while that every syllable should be of a single word, we have at least four files of different types of words, namely, those specified by the conventional part-of-speech classifications: 'noun', 'verb', 'adjective', and 'adverb'. The minimum model vocabulary is now popu-

4) *cf.* pp. 71-77, Vol. 23, 1973, of the present publication.

lated with single words under the four part-of-speech classifications comparable to the kinds of syllables of the syntactical axis, so the words classified under 'noun' are only those sufficient by themselves to become Nominal syllables and fill the position of Subject, Object or Complement of a sentence—inversely, a word is classifiable as 'adjective' if it is found to fill, by itself, a post of an Adjectival syllable of a sentence and so on. The vocabulary thus organized may be called 'lexicon'. Each of these part-of-speech classes farther divide itself not in terms of introvert distinctive features of the words, but in terms of their extrovert idiosyncracies in the mode of participation in the syntactical environment, if further convenience for retrival is sought; e. g., the verbs can be sub-divided into five types according to the kind of sentence patterns they potentially select in clause environment. So goes every classification and sub-classification to a desired degree of fine-ness along the length of y-dimension of our frame-work of simulated English.

We have asserted that every one of these four cardinal part-of-speech classifications divides itself into two; one 'closed group' where the membership is already closed, admitting no *ad hoc* additions or loss; the other, the 'open group' where the membership is open and ready to admit (or dispense with) new members, even though the distinction may be often relative. To the first group belong those usually classified as 'nouns', 'verbs', 'adjectives' and 'adverbs', while to the second belong, respectively, 'pronouns', 'auxiliary verbs', 'determiners' and a group of adverbs that has no given name. To the latter group such grammatical particles as 'prepositions' and 'conjunctions' may be added even though they have no corresponding 'open group' counterparts. The lexicon may be now laid out in a table as it were the structure revealing itself on the facet y of the subject.

Fig. 6 Frame for single-word lexicon[5]

	syntactical				grammatical	
open	verb transitive intransitive	noun countable uncountable	adjective attributive	adverb additive		
closed	*do* modals *have* auxiliary verb	nominative accusative (reflexive) pronoun	delimiting determiner	predicative (interjection) (adverb)	preposition	subordinate coordinate conjunction

Some observations are to be made on the single-word lexicon above. The relativity (rather than bisection) between the two types is expressed by putting them at

5) *ibid*, modified and arranged over the Sample Lexicon of p. 73.

opposing extremes with a broken line as the partition. It is also observed that those at the bottom are dependent, anticipating another element to follow and to conclude therewith. (Pronouns in nominative and accusative do belong here, while those in genitive are consiedred as a set of determiners.) Obviously auxiliary verbs are not avilable as single-word items. Likewise, the items enumerated under the determiners are not likely to appear by themselves as an Adjectival syllable in complement position; they must entail some kind of Nominal element and be thereto absorbed. The grammatical particles, prepositions and conjunctions, also need explanations: they come under the heading 'grammatical' whereas the other four are ascribed to 'syntactical'. Prepositions do not stand alone in actual employment while the conjunctions, though of a closed group, are of two kinds: one (subordinate conjunctions) like prepositions, anticipate a partner, in this case, a clause, while the other (coordinate conjunctions) is a group of simple connectors of words, phrases or even of clauses, loosely anticipating something before and after but never affecting their status.

To bring the approximation of the product sentences coming out of the scheme a degree closer to real English, or to a language, an additional level of fine-ness in classification and combination become necessary for the lexicon. If the affairs are completely within and among the words themselves, we could call them 'grammatical', e. g., the derivation of one kind of words into another by a set transaction; or the inflection of one kind of words by number, degree, or tense or even by person; or conjugation of one kind of words by case, etc., no matter what these designations of the phenomena may imply. These local or incidental features properly belonging, or innate, to the words themselves may be read into the lexicon as the property belonging to the words themselves rather than to the grammar. These changes are potential for words, individually or in a group, and they may occur without anticipating the eventual attainment of expression in the form of an accomplished sentence.

The lexicon cast on this concept, of course, requires, to be serviceable, a practical cross-reference and a dictionary. The items under each heading may be conveniently ear-marked or numbered to relate them individually to entries in the dictionary which contains the address of each word in the lexicon by way of the ear-marks and numbering given above[6]. We must, of course, conceive a two-way bilingual diction-

6) Although the semantic aspect is not under the present curriculum, a brief note to the matters of dictionary may here be relevant. The dictionary should give the pragmatic meaning of each item entered, in other words, each word listed should show the way to the semantic correlatives beyond. A principle may be established for such a dictionary—that semantically it should define every entry with a set number of axiomatic minimum words (whose meaning is taken for granted,) so that there will be no tautology of definition in the cartesian dictionary. Could

ary with a minimum of items explained in native terms of the learners, all the rest being thereby defined and described. Entries there should give the address where they find themselves in the lexicon—the address, the classification, itself intimating the features, the innate grammar of the words themselves. The grouping may vary and not be necessarily unique throughout the system, i. e., various groupings may be done over a single or same group, or the groupings may even fully or partially overlap with each other, all to the convenience of retrieval into a higher order of employment.

The lexicon and grammar at this stage, i. e., the regime of a one-word one-syllable state of affairs, by-passes and short-circuits the processes between the levels of words and syllables—the words are automatically the syllables without going through such intermediate levels as phrases or clauses. The actual langauge, however, has another mechanism for combining the words into syllables where words lose their original identity. We have named such affairs 'synthetic grammar' and it is to be tabulated into a paradigm where all the combined structures converge into any of the four kinds of syllables.

7.5 Paradigm

Unless a syllable of a sentence is of a single word, it is of phrasal or clausal construction. When analysing a sentence, we can designate a word as a syntactical syllable from the collocation in the environment and we can perhaps confirm it as such by finding the word in the lexicon, under the heading, for instance, 'noun', but if a segment of a sentence standing for a syllable contains more than one word, we must know what kind of words are involved and in what manner the more-than-one-word syllable there in question is formed.

The paradigm is a set of clues so tabulated that the analysis within the syllable may thereby be carried out. The paradigm is therefore deployed in terms of four kinds of syllables arranged in terms of combination of the members, and of the levels of the product structure, i. e., how they should cluster themselves to attain syllable-hood together and whether the product syllables are words or phrases or even clauses. Combinations are divided conveniently into five; (1) single, (2) combined, (3) annexed,

it be possible, we do not know. How many words should be admitted as self-evident? What is the maximum numbe of terms that are allowed to define an entry? A dictionary of a hundred entries which employs one hundred words contained therein as entries is theoretically tautological and meaningless. Pragmatically we do not seem to know the answer to these questions as discussion leads us to fundamental semantics. In the teaching of a foreign language, however, this problem is averted at the very beginning because many words can be bilingually defined. Thus even if we were not to find every entry a counterpart entry of the other langauge, we could designate some hundred basic words as cartesian 'known' elements and define or describe the rest of the vocabulary items by the combinations of such knowns.

(4) adjoined, (5) bracketed, as laid out in a table below[7].

Fig. 7 Simplified paradigm

		V ~ verb	N ~ noun	ADJ ~ adj.	ADV ~ adv.
single	WORD	*(be), am, is, are/was, were*	noun	adjective	adverb
		go, goes/went, etc.	pronoun	determiner	interjection
combined	PPHRASE	*do, does / did* +root *can / could*, etc. +root *ought / ?* +*to*+root			
		has, have/had+*to*+root *has, have / had* +p.p.			
		can / could have +p.p. *can / could have* +*to*+root			
annexed			noun→+noun	adj.+adj.	adv.+adv.
adjoined		verb×adv.	adj.×noun	adj.→×adv.	adv.×adv.
bracketed			determiner×noun	prep.+noun	prep.+noun
			verb-derived: infinitive+α	infinitive+α	infinitive+α
			verb-derived:	pres. part. / past part. +α	pres. part. / past part. +α
			verb-derived: gerund+α		
	CLAUSE		conj.+CLAUSE	(conj.+CLAUSE)	conj.+CLAUSE

As a matter of convenience, both the present-past alternatives for verbs and the auxiliary-verb+verb structures are entered as if they are matters of the paradigm, instead of relegating them to the lexicon as part of its innate grammar[8].

Thus the general procedure to determine which pattern a sentence syntactically belongs to, i. e., according to the pattern in which its immediate constituents are collocated at the level of syllables, should be first, to locate, in the lexicon, all the words involved and assign them to the proper headings there, i. e., to the address, or to the proper 'part-of-speech' classifications, then if any of them is found filling a post of a syntactical position by itself (that is, not in a combination with other words in the manner stipulated above from (2) to (5)), its syllable-hood is there established... this is what is happening on the first level of the paradigm, i. e., WORD-single layer where only four part-of-speech classifications are admitted.

7) *ibid.* p. 45, with some modifications.

8) *cf.* p. 62, Tables 3, 4 and 5, Vol. 22, 1972, of the present publication.

Secondly, if a word of the given sentence is found located in the lexicon under the heading 'auxiliary-verb', then we go down to another level of the paradigm, namely, 'combined structure' where words are found accumulating into phrases. The paradigm gives the formula for such auxiliary-verb combinations under the heading reading 'V ~ verb'.

If two words belonging to a class of the lexicon are consecutively collocated and if syntax there demands that they form a unit, then the affair belongs to the third level, 'annexed structure'[9]. If the words involved comply to the specification formulated in the paradigm, the syllable-hood of the collocation is acknowledged, and the product of the annexation, a phrase, belongs to the kind of syllable the paradigm so indicates. Thus a noun-and-noun annex qualifies itself as Nominal syllable. It is also evident that the formation is an equivalent of a single-word noun, though indifferent to its syllable-hood.

If a syntactically obtained unit is found to be a pair of words that are different in their respective part-of-speech designation in the lexicon, we say the pair are in an 'adjoined' state where one of the members is affixed to the other with the part-of-speech designation of the product remaining to be that of either of the members adjoined. Any adjective-and-noun unit thus qualifies itself to be a Nominal syllable in actual employment, and as a corollary it is a noun-equivalent phrase for any use as such. The case of adverbs joining another adverb to form ADV, however, may be considered as adjoining of one to the other rather than annexing, hence the broken partition line in the table. The terms such as 'noun', 'adjective' etc., here are meant to be ambiguous—designating the part-of-speech classification of the individual words as well as any structures that are their equivalents. (This will be explained later.)

The adjoined structure for N includes only those lexical nouns with lexical adjectives as their coefficient while that of ADJ includes those adjectives adjoined by adverbs, and that of ADV, adverbs adjoined by another adverb. These three kinds exhaust the adjoining, and the mode of adjoining is clear-cut among the four kinds of words involved (nouns, verbs, adjectives, and adverbs, those called 'syntacticals' in our terminology). Adverbs adjoin to all except nouns, while adjectives adjoin only to nouns, and *vise versa*. The conventional terms for adjoining are varied: 'qualification', 'attribution', 'modification', etc., while the determiners are not instituted as a part-of-speech and are said to 'restrict' or 'determine' the meaning or application of the nouns. The determiners are nevertheless adjoined to the nouns as in the table, but we could consider it as a case of 'bracketing' rather than adjoining, hence the broken line separating it from the 'bracketing', the next level of the paradigm.

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9) formerly 'combined' thus revised.

The fifth level of the paradigm covers the 'bracketed' structure. The syllables of bracketed formation at phrase level are of two kinds—one is the noun-based and the other, the verb-based structure. Of the former there are two types; one is the determiner-headed structure mentioned above, the other, the preposition-headed structure—the former union resulting in Nominal while the latter in either ADJ or ADV. Peculiar to the verb-based structure is the fact that they contain analogues of syntax-formation innate to individual verbs We have named such members led by 'oblique verbs' as their 'subordinate elements' (expressed generally by an α). Under this group are three kinds; we have the structure consisting of verbs in infinitive trailing their subordinate elements to operate in three functions—that of N (and noun-equivalent), of ADJ (and adjective-equivalent) and of ADV (and adverb-equivalent.) Then we have verbs in participial declensions, both present and past, encompassing their subordinate elements if any, to function either adjectivally or adverbially, but never as N (or as noun-equivalent). Finally we have the structure 'gerund and its subordinate elements' functioning exclusively as N (or as noun-equivalent).

As these derivative verbal conjugations are in themselves the indices, the heading, which, like prepositions and subordinate conjunctions, encase the converted verb and its subordinate elements, we are here including these structures in the category 'bracketed' even though there is no separate word-particle to mark the invisible parenthesis, or brackets.

The last level of the pradigm includes the so-called subordinate cluases in three functions, each preceded by subordinate conjunction as the agent of the bracketing function. The adjectival subordinate clause is what is conventionally called a relative clause in attributive position to its antecedent noun. The parenthesis in the table, however, indicates that such relative clauses do not stand alone in the complement position, which fact apparently disqualifies it as Adjectival. (It is known that if it is put in the complement position it turns out to be nominal rather than remaining to be abjectival.)

The verb-derived structures are traditionally considered as part of the predicate verb, when they are in complement position. We presented a separate paradigm for this type of formation in Chapter III[10]. The treatment proposed there is necessary and obligatory for limiting the syntax as to contain only five patterns, instead of instituting numerous sentence patterns more or less statistically according to the text frequencies as structural linguists used to do.

This concludes the explanation for the paradigm. Some reminders may be attatched, however, to eliminate confusion. The index 'CLAUSE' here has not yet been defined

10) *ibid.* p. 83, Tables 6, 7, and 8.

or specified although included in the diagram. Pedagogically we could simply define it as any structure that contains the form of a syntactical sentence. When a clause is independently spoken and accomplishes speech, we call it a sentence. When it is 'embedded' into a sentence in either of the three functions of syllables, we call it a subordinate clause. A Nominal syllable consisting of a noun and a relative clause attributively adjoined may be called a noun 'phrase' even though it contains an adjectival 'clause'. The matter in the pradigm is, beside being ambiguous, recursive within the paradigm, that is, a noun phrase of an abjective-noun adjoined structure may be further adjoined by another adjective, or may be bracketed by a preposition, etc. It should be remembered, therefore, that the headings, N, ADJ, and ADV, are relative in the sense that if the found element alone fulfills the function of a syllable in a sentence or in a clause, it is a syllable of that heading, but the structure may be as well employed to form another superior structure, for instance, an adjectival clause attributively adjoining a noun, in which case an apparent adjectival syllable loses its syntactical syllable-hood to the noun which may not be a syllable of a sentence. Further detail may be added to the paradigm so that the product thereof should attain a higher fidelity to the living language.

7.6 Grammar

While the paradigm provides a table of clues by which to determine the constituent syllables of any given sentence, arranged by the kind of relationship binding the internal members of each syllable, it fails to prescribe the manner in which each word operates on itself and on one anther below the level of syllables. The lexicon, on the other hand, is based on the words in anticipation of retrieval through stages of phrases and clauses up into syllables. The organization of the lexicon itself, therefore, contains some prescriptions for individual words. Thus what remains to be stated is grouped here together as 'grammar'.

We have anticipated all the way the existence of 'synthetic grammar' as the converse of 'analytical syntax'. Synthetic grammar, in the complementary vector to that of the other, represents the direction of our mental propensity starting from the individual concrete words as known, and organizing these according to the innate propensity of the words themselves into meaningful structures of a desired level and magnitude. It is hence basically open to infinity. We will have to write a whole grammar nevertheless on the principle of this mental tropism in some way or other eventually to conclude the discussion we have set out. However, since the whole matter has been so far delineated in the analytical direction, the scope remaining seems to be rather meager and miscellaneous, and the curriculum for the area only requires some scattered mention of this or that feature of words or of their collocations.

A brief outline of the grammatical aspect nevertheless should be presented to bring the system so far developed into a complete whole.

The grammatical aspect of language may be considered as local, consisting of relative laws governing the incidental elements involved without reference to the ultimate and evental attainment in a piece of accomplished speech, that is, the matter belonging to the *y*-axis. Instead of defining what grammar is, we shall present in diagrams, the items and systems that should be included under the heading 'grammar' and be taught according to the best pedagogical convenience. Basically such grammar should be a matter of words, hence the phenomena that conclude themselves on the individual words should be enlisted in a manner most convincing and reasonable. The total field for grammar is here divided into three major sectors; innate grammar, synthetic grammar and miscellaneous grammar.

The first sector of the grammar, the innate grammar, is set at the one-word level in four syntactic part-of-speech categories, i. e., verb, noun, adjective and adverb (Fig. 8). The grammar here is laid out on a spectrum ranging from 'shifting' down to 'coversion', or from what is syntactical to what is lexical.

'Shifting' is the possibility of the words of these four categories to assume the function of any of the other categories *ad hoc* usually under the pressure of syntactical environment[11]. What is important here is that it takes place syntactically and is conscious. It is often closer to stylistic preference, rather than to grammatical derivation or syntactic divergence.

The second on the spectrum is the 'synthesis' which prescribes the procedures for adding another word to a base-word. It includes 'combination', 'annexation' and 'adjoining' as the usual procedure but it also contains a portion of the innate grammar, i. e., 'conjugation' and 'bracketing', through which the base-word changes its function into other part-of-speech categories.

The third on the spectrum is the above mentioned 'conjugation' where the words undergo changes without affecting the others but being affected by the others. Besides the conjugation for verbal derivations, there are conjugations of verbs for syntactical agreement and inflections of pronouns by case, etc., even though they may not incur changes on the status of the words involved.

The last on the spectrum is 'conversion' under which one kind of words is converted into another through a set of procedures (e. g., adj.+*ly*=adv., etc.). The phenomena may be considered something not quite grammatical, but it will be impractical to neglect the regularity of some of such phenomena. Beside the obvious cases of affixation, some of the features may be better considered as etimological rather than

11) e. g., *travel* agent n.→adj., He died *prisoner.* n.→adv., He sleeps *tight.* adj→adv., School is *over.* adv.→adj., etc.

Fig. 8 Word-based grammar

STYLISTIC ⟶	grammar	process	single-word base: v.	single-word base: n.	single-word base: adj.	single-word base: adv.	product
	⟵ ETIMOLOGICAL						
	syntactical ⟶ (*synthetic grammar*)	shifting					v.
							n.
				○		○	adj.
				○	○		adv.
		synthesis	combination (aux.+v′)				v.
			conjugation	annexed (n.+n.)	adjoined (adj.×n.) (*the*+n.)		n.
				bracketed	annexed (adj.+adj.)	adjoined (adv.×adj.)	adj.
			(inf, participle, gerund)	(prep.+n.)		annexed (adv.+adv.)	adv.
		conjugation	tense number person				v.
			gerund / infinitive	case: number person gender			n.
			participle / infinitive	case	degree		adj.
						degree	adv.
	⟵ lexical (*innate grammar*)	conversion	dis- un- re-	en- -ize -fy	-en		v.
			-ment -er -ion	in- -ness -er -ist	-ness -ty		n.
			a-	-ous -ful -ish	un- -y in- -ish		adj.
			a-	-wise a-	a- -ly		adv.

grammatical, e. g., the grouping of such a set of words as /sit/, /set/, /seat/ as contrasted against another, /sit/, /to-sit/, /sat/, /sitting/, the latter group being considered as a case of conjugation.

We might protract the diagram downward to a desired degree, for instance, to an analogous section containing those items that are common in form between the basic part-of-speech classes, or even those that can change the part-of-speech from one to the other by only changing the vowel. Features ascribed to words or group of words

in their usage may be enumerated as items of grammar to the infinite degree of detail and particularity. The further it goes, the more it approaches the area of lexicon and vocabulary. Thus the direction downward on our spectrum indicates that it looks towards etimology—going retroactively into a diachronical phase of the language, i. e., the history of English. The opposite direction of the protraction may be interpreted as looking towards stylistic variants, the inventive *ad hoc* uses by living native speakers,—representing the future of the language, so to speak.

The second major sector of the grammar is what is properly called 'synthetic gramamr' in a reduced sense which covers what has been formulated in paradigm already, but in converse order—instead of arranging the phenomena according to the kind of synthesis or combination of the element, they are arranged by the lexicon-classification of the words themselves. This will be expressed in a set of grammar for three syntactic categories, (1) noun, (2) adjective, (3) adverb, (Fig. 9_1, Fig. 9_2, Fig. 9_3 respectively). There the prescription for performance of a single-word is again briefly mentioned but it tells more about how the phrases and clauses behave as bases of further synthesis into superior structures—syllables or sentences. How to use a noun-phrase made up of a gerund and its subordinate elements in a sentence environment can be found laterally in the third and fourth line from the bottom of the Fig. 9_1—its use is found wide and free, both grammatically and syntactically[12].

Thus the particular grammar here contains those phenomena concerning the behavior of the phrases and clauses as contrasted to the single-words in the comparable part-of-speech classifications. This will consist mostly of the restrictions to the analogous use of the phrases and clauses as compared to those of the single-words in the same classification, e. g., noun phrase as noun, adjective clause as abjective, etc. Pedagogically this will be expressed in a list of inhibitive restrictions set in a positive backgroud, for examaple in the case of a noun phrase, all the modes of performance granted to an ordinary single-word noun are categorically admitted to the phrase. Instead of enumerating those possible ones consecutively, we will cite the pertinent article of grammar only where such generality does not apply. According to the matrix, n + [tall × man] is impossible hence (×); [tall + friendly × man] may be questionable but possible, (△); while the majority of uses are possible, (○).

Finally, the third major sector of our grammar, the miscellaneous grammar, will have to contain the remaining miscellaneous features considered not only of a particular word but also of a certain group of words and environment, that can be generalized in whatever term beneficially applicable. There will be some that may be more

12) Entries are here more or less tentative, only to show how it would appear when completed at this level of intended fineness.

Fig. 9_1 Grammar for nouns and noun-equivalents

type of base (*examples*) \ performance				grammatical				syntactical						
				further annexing of a noun	further adjoining of an adjective	internal addition	bracketing by preposition	syllable function						
								S	O_1	O_2	C_i	C_t	appo-sition
WORD	single-word formation	single nouns(*boy*)		○	○	—	○	○	○	○	○	○	○
		pronoun	nominative (*I, he*)	×	×	—	×	○	×	×	○	×	○
			possessive pronoun (*mine*)	×	×	—	○	○	○	○	○	○	○
			accusative(*me, him*)	×	△	—	○	×	○	○	×	△	○
			reflective (*myself*)	×	×	—	○	×	○	○	○	○	○
PHRASE	synthetic structure	annexed phrase (*stone head*)		○	○	△	○	○	○	○	○	○	○
		adjoined phrase (*tall man*)		×	○	△	○	○	○	○	○	○	○
	conjugated verbs	gerund	gerund (*findings*)	○	○	○	○	○	○	○	○	○	○
			gerund+α (*giving it him*)	○	○	○	○	○	○	○	○	○	○
		infinitive+α (*to*+root) (root)		×	×	○	×	○	○	○	○	△	○
CLAUSE				×	×	○	○	○	○	○	○	△	○

relevantly considered as syntactic, e. g., contractions, substitutions, etc., while others may be more conveniently handled as stylistic variants. The didactic grammar covering this broad and loose scope may be separately dealt with in full elsewhere in a different manner and on different principles from those of the present essay.

7.7 Toward a working curriculum

In a parody of what we stated about the ideal-finite state model of langauge to teach or to learn, language seems to take on two aspects: if it is approached as an unknown phenomena, it is something eternally unknowable to human analysis but if it is approached as pragmatic known, no matter how limited, it presents itself as an evident and obvious fact, manageable according to the utility intended.

Fig. 9$_{-2}$ Grammar for adjectives and adjective-equivalents

type of base (*examples*) \ performance					grammatical		syntactical		
					further annexing of adj.	further adjoining of adv.	syllable function C_i	syllable function C_t	attribution
WORD	single-word formation	single-word adjective (*good*)			○	○	○	○	○
		determiner	determiner (*the, this*)		×	△	×	×	○
			pronoun-genitive (*your, his*)		×	×	×	×	○
PHRASE	synthetic structure	annexed phrase (*pretty big*)			×	×	○	○	○
		adjoined phrase (*very big*)			×	○	○	○	○
	conjugated verbs	participle	pres. part.	pres. part. (*living*)	×	○	○	○	○
				pres. part.+α (*reading it*)	×	○	○	○	○
			past part.	past part. (*gone, loved*)	×	○	○	○	○
				past part.+α (*named John*)	×	○	○	○	○
		infinitive+α			×	○	○	△	○
CLAUSE					×	×	×	×	○

Fig. 9$_{-3}$ Grammar for adverbs and adverb-equivalents

type of base \ performance					further annexing, adjoining	attributive uses
WORD	additive (*very, not*)				○	○
	predicative (*yet, ever*)				○	△
PHRASE	annexed, adjoining (*very well*)				○	○
	conjugated verbs	participle	pres. part.	pres. part.	○	○
				pres. part.+α	○	○
			past part.	past part.	○	○
				past part.+α	○	○
		infinitive+α			○	○
CLAUSE					×	○

In the teaching and learning of an unknown langauge, the eventual perfection is not in sight and there is no way to count backward thence for measuring the present progress and direction. However, by arbitrarily setting an ideal-finite state of the language to be attained, and by counting thence backward, the process and dosage, if measured against time and other conditions involved, may be calculated and adjusted. The teaching party in the site of learning, at least, represents the known.

As long as langauge is conceived as a pragmatic convenience we happen to agree to use for any purpose at all, rather than as a self-sufficient phenomena eventually explainable in absolute terms, we may be able to draw some plausible measures and policies. Thus we have more or less arbitrarily designed an outline for teaching the algebraic, that is, structural, aspect of the language assimilating the historical English.

The discussion has been only an outline in a sketchy skeleton of a geometric parable. The language to be learned being defined by finite extent x and infinite consecutive length y, representing the syntax and vocabulary respectively, and combining these two facets by paradigm-grammar complex, as a line of congruency, has been the main frame-work of the proposed curriculum. How to consign a real linguistic substance to these dimensions may be the pedagogical and empirical matters to which we should be energetically applying ourselves.

What we should at least attempt to gain then is a consistent policy in teaching individual items of prescription as if they are in reasonable and lucent structure, simple or complex. The density of the substance administered to the learning party may be augmented evenly at each level of advancement toward the desired level of accomplishment and mastery. Thus the efficiency, i. e., the degree of success or failure of teaching may be made calculable, when everything is equal, by the time required in attaining the set level of achievement. The actual utility and facility acquired is a composite phenomena not easily to be taken for the indication of success or failure. However, for teaching parties (native or non-native) it should at least be something comprehendable and manageable as the substance being imparted to the learners, if teachers are not to teach by their native (or pseudo-native) competence and conviction but by an objective curriculum which is in itself self-explanatory and sufficient.[13)]

13) to be continued.