

ANALYSIS OF CONCATENATIONS  
IN THE STRUCTURES OF NON-MINIMAL SENTENCES IN ENGLISH

by

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1.0 Introduction.

1.1 Using a combination of concepts borrowed from three theories of grammar current in descriptive linguistics, i.e., slot-filler display, immediate constituent analysis, and generative grammar, Engler develops an analysis of English which posits five basic, or minimal, sentence-types.<sup>1</sup> Each of these minimal sentence-types may be used alone as an independent utterance with minimal fillers in the syntactic slots or with the slot fillers expanded in various ways, or combined with others in concatenations, to form the utterances of spontaneous spoken General American English.

1.1.1 Slot-filler display has been for years a standard tool of grammarians and language teachers, and recently has been appearing more frequently as the mode of presentation in language descriptions by leading linguists, e.g., Joos, The English Verb: Form and Meanings, 1965.<sup>2</sup> One commonly used recent explanation of this theory was presented by Glinz, a Swiss grammarian, in his studies on the inner form of German and the German sentence.<sup>3</sup> Glinz subjected a number of German sentences to what he called "Verschiebeprobe" or "Rearrangement Test", i.e., by rearranging each sentence into all its other

possible word orders which produced sentences that made sense, he identified the "Stellungsglieder" or "moveable elements" which we call "syntactic slots" and give the traditional labels of "subject", "verb", "object", "complement" and "adverb". For example, in English we may perform such a test on the sentence "The man is in the house.". We discover that three arrangements are possible in normal usage:

The man is in the house.

Is the man in the house?

In the house is the man.

In this example three syntactic slots are noted:

Subject; i.e., "the man".

Verb, i.e., "is".

Post-verb (complement), i.e., "in the house".

Engler applied this technique of Glinz to a number of English sentences, and, after tabulating the results, found that they pattern out into five typical types of arrangement, which he calls "sentence-types". (The techniques used by Engler were as close to those of Glinz as the language differences permitted. The structure of German admits more basic sentence-types than does English.<sup>4</sup>) The five types are classified on the basis of type of verb involved, in turn conditioned by type of syntactic slot following the verb.

1.1.2 The kinds of parts of speech and phrase structures used to fill each of the slots in the English sentence-types were then noted by Engler, along with the features of arrangement and relationships among the slots, e.g., order, grammatical inflections,

concord and government, function words, and intonation contours, by immediate constituent analysis. This approach, commonly termed "IC", has, since Wells' discussion of it in 1947,<sup>5</sup> become a standard technique in descriptive linguistics for analyzing utterances into their component parts at the morpho-syntactic level, with special attention to the relationships among the parts. An IC "... is one of the two, or a few, constituents of which any given construction is directly formed."<sup>6</sup> For example, "The man is in the house.", has as its ICs "the man", and "is in the house". The ICs of "the man" are "the" and "man". The ICs of "is in the house" are "is" and "in the house". The ICs of "in the house" are "in" and "the house" which has as ICs "the" and "house". This series of successive division (cuts) may be illustrated by marking I for the first cut, II for the second and so forth:

"The II man I is II in III the IV house."

The greater expansion of the predicate permits more divisions. "The process of analyzing syntax is largely one of finding successive layers of ICs and immediate constructions<sup>7</sup> and the description in terms of ICs."<sup>8</sup>

1.1.3 Transformational grammar, as introduced by Chomsky in his Syntactic Structures, 1957,<sup>9</sup> was based on the notion that a language is underlain by basic "kernel" sentences which may be transformed in various ways to generate all and only the sentences of the language. Engler uses this notion in establishing his basic minimal sentence-types which may then be given features of word-order and

intonation contours which endow them with the status of "utterance" in the various versions such as declarative, interrogative, jussive. (e.g. "You hit him", "Did you hit him?", "Hit him!").

1.1.4 Engler suggests that, if these minimal sentence-types and their expansions and transformations account for all the fundamental syntactic patterns of English, then any utterance in English, no matter how long or rambling, could be analyzed out as basically one of these sentence-types, or several of them combined or "concatenated" in a larger construction. In the latter case, he suggests as categories of concatenation, that minimal sentence-types may be strung together like a string of beads by juxta-position, coordination, or subordination, or one embedded or encapsulated inside another as part of the process of expansion of the filler within the slot, or expansion of the sentence-type itself by the addition of slots.

1.1.5 During 1964-65, when Engler and Hannah were in the process of applying Engler's model to the analysis of the speech of children,<sup>10</sup> this writer had the opportunity to participate in some of the work of analysis and the ensuing discussions. Some thirty hours of the conversation of school children had been tape-recorded, and the recordings transcribed in standard English orthography without punctuation. The analysts then listened to the tapes again while watching the manuscript, and marked the places on the manuscript corresponding to the pauses in the speech heard on the tape.

The material between every two marks was then considered a "segment" and analyzed for intonation contour, type of terminal juncture, and syntactic slots and their fillers. The segments seemed to categorize nicely into Engler's five basic minimal sentence-types, plus minor sentences, sentence fragments, and lapses. Further, the segments were indeed often strung together one after the other in longer utterances, and sometimes found embedded or encapsulated, one inside the other. Thus it was apparent that Engler's suggested categories of concatenation would be useful, but in need of refinement and augmentation. It was agreed during the course of the discussions that an ad hoc generalized statement based solely on the tabulation of the concatenations found in this one corpus would not necessarily be complete and valid for the analysis of another corpus, nor even the most efficient one for the analysis of this particular corpus,<sup>11</sup> and it was suggested that this writer make a contribution to the development of a model which would provide the refinement and augmentation needed.

1.1.6 A necessary step in the development of a generalized statement of the categories of concatenation that would be more nearly complete and valid for the analysis of any corpus, is the construction of a model based on the systematic search of all the mathematically possible combinations of the basic minimal sentence-types, for those which are grammatically permissible and the restrictions differentiating them from those that are not permissible (see Section 1.1.7). This thesis is intended as a contribution to the

construction of such a model, but, because of the astronomical, if not infinite, numbers of possible arrangements, it is limited in scope to the consideration of combinations of any two basic minimal sentence-types, one performing a privative function over the other, and also limited to the classification of the combinations according to position, i.e., location of the concatenating member before or after the base member, or within the base member.

1.1.7 The English referred to in this study is General American as spoken by the writer in informal conversation. Unattested forms are those which, when generated according to the generalized formula resulting from procedural step 1.2.2 below, were not recognized as being part of the regular signaling system.

1.2.0 The methodological procedure, followed in one specific application by Engler, and advocated by linguists in general, has recently been presented in general terms by Paul Garvin in his On Linguistic Method, 1964.<sup>12</sup> He specifies five steps for language analysis which are "outlined as follows:

- "1. Formulation of the immediate analytic objective;
- "2. Preparation of a data base by ... reorganization of existing data;
- "3. Impressionistic examination of data to observe pertinent units and relations;
- "4. Operational tests when necessary to verify impressionistic observations, leading to attestation of relations and definition of units.



"5. Collection and examination of additional data to cross check relations and definitions."<sup>12</sup>

The following five sub-sections (1.2.1-1.2.5) will present what was done in this study to fulfill the requirements of each of these five steps presented by Garvin.

1.2.1 The immediate analytic objective of this study is to explore and categorize the possible concatenations of any basic sentence composed of a subject, a verb, and a post-verb. They will be considered in the following order:

- 1) One basic minimal sentence-type used as the filler of the subject slot in another basic minimal sentence-type.
- 2) One basic minimal sentence-type used as the filler of the verb slot in another basic minimal sentence-type.
- 3) One basic minimal sentence-type used as the filler of the post-verb slot in another basic minimal sentence-type.
- 4) One basic minimal sentence-type external to, but adjacent to, another basic minimal sentence-type, with the former modifying the latter.
- 5) One basic minimal sentence-type positioned between the subject slot and the verb slot in another basic minimal sentence-type.
- 6) One basic minimal sentence-type positioned between the verb slot and the post-verb slot in another basic minimal sentence-type.

1.2.2 The reorganization of the existing data which was required for the preparation of a data base involved the computation of mathematically possible arrangements of two basic sentence-types, one placed as a unit within or next to another. Permutation of possibilities with six syntactic positions and five basic sentence-types yields a total of 175 possible concatenations. These will be classified and discussed according to position of the concatenation and types involved in either function, modifier (concatenator) or modified (concatenated). (See Section 1.2.1 above for positions discussed, and Section 4.7 for an explanation of numerical system by which the concatenations are classified.).

1.2.3 Since the units involved have already been specified to be the basic sentence-types the impressionistic examination was limited to prediction of the type of function the concatenator might have in any given position (noun clause, adverb clause, or adjective clause), which is to say, the relations between the units. No record was kept of these original estimates.

1.2.4 Operational testing involved generating utterances according to the "rule" (i.e., the general formula for the concatenation), by placing arbitrarily selected basic sentence-types, which meet the specifications, in the position considered. These were then adjudged grammatical or not grammatical by native-speakers (including the writer, several of his fellow graduate students, and several faculty members in the Department of Speech at Kansas State

University.)<sup>13</sup> Grammatical utterances found were considered to provide attestation of possibility of that concatenation and confirmation of the impressionistic observation of expected relationships. Sections 5. through 10. provide an itemized account of the concatenations which were attested in this manner. The .0 sub-sections provide a summary of that section. Section 11. includes tables which demonstrate the patterning which developed.

1.2.5 The contribution to the development of a model for sentence classification that this study hopes to make is the system of classification by syntactic position of concatenations of two basic sentence-types, one serving a privative function over the other, and the possible extents and limitations of the possible concatenations. Since the Engler-Hannah research was largely responsible for this study, their transcribed material was utilized as additional data with which to check the relationships of the units occurring in the various syntactic positions. Since this study is concerned with the development of a model for classification of sentences, rather than with the process of analysis itself, it is sufficient to state that no syntactic arrangement, or any relationship in any arrangement was found in the children's speech, which was not already attested by the model.

## 2.0 Non-Basic Sentence-Type Classifications.

2.1.1 Presented here are representatives of several of the

ways in which sentences have been classified by various writers. Kruisinga and Roberts were selected as grammarians, whose works are primarily traditional, with some linguistic influence evident. They classify non-minimal sentences in different manners, both of which are of value in some circumstances. Fries and Francis were selected as the leading linguistic grammarians, as opposed to the linguistic theoreticians: Pike, Wells, Chomsky.

2.1.2 The oldest quoted (5th edition, 1932) work here is a four-volume one, A Hand-book of Present-day English, by Etsko Kruisinga.<sup>15</sup> The last volume deals with accident and syntax. Interestingly enough, this was the only one which spoke of form and function of the sentences.<sup>16</sup> His classification includes: 1) "apparent simple sentences, which are double or compound in function." 2) "apparent compound sentences which are double sentences in their function." 3) "apparent coordinate sentences or parts of sentences." 4) "apparent sub-clauses which have the function of independent sentences."<sup>17</sup> How he distinguishes between single sentences and series of sentences is not specifically defined.

2.1.3 Paul Roberts, in his Understanding Grammar, 1954<sup>18</sup> follows the traditional classifications of: 1) simple, 2) compound, 3) complex, 4) compound-complex.<sup>19</sup> His terminology for clause classification has been utilized in this study, i.e., the terming of certain clauses as noun, adverb, or adjective clauses, in regard to their function in the sentence.

2.1.4 Charles C. Fries, in The Structure of English, 1952<sup>20</sup> uses a conversational position method of classification: 1) situation sentences (those utterances dependent upon suitable situations to be fully meaningful. e.g. "Hi!", or "Headache?"), 2) response sentences (those utterances which reply to a query. e.g. "Yeh!", or "No, it isn't."), 3) sequence sentences (those which follow one another in a stream.).<sup>21</sup>

2.1.5 W. Nelson Francis has adopted Fries' classification, in his The Structure of American English, 1958.<sup>22</sup> He distinguishes between single sentences and a series of sentences in that a single sentence is what occurs from the beginning of an utterance to a terminal juncture (rising or falling) or between two such junctures.

2.1.6 Traditional grammars have dealt extensively with functions of word types. Such details on a sub-sentence level as outstandingly demonstrated by Jespersen<sup>23</sup> will not be considered here, since this would constitute another level of complexity in the development of a complete model, and is beyond the scope of this study. That is, such problems as what sort of word is necessary to introduce a noun clause will not be of concern.

2.2 The accepted form of linguistic analysis has been corpus analysis as done by Fries<sup>24</sup> and Joos<sup>25</sup>, from transcriptions of speech. Traditionalists have used literature as a source of corpus material. Paul Garvin<sup>26</sup> suggests that such methods are of limited



## 3.1.1 Sub-type .1.1 —

SUBJECT + VERB<sub>be</sub> + POST-VERB<sub>complement</sub> —  
 nominal  
 adjectival  
 adverbial

The man is a professor.  
 tall.  
 here.

## 3.1.2 Sub-type .1.2 —

SUBJECT + VERB<sub>become</sub> + POST-VERB<sub>nominal</sub> —  
 adjectival

He becomes a professor.  
 tall.

## 3.1.3 Sub-type .1.3 —

SUBJECT + VERB<sub>get</sub> + POST-VERB<sub>adjectival</sub> —  
 adverbial

He gets angry.  
 here.

## 3.1.4 Sub-type .1.4 —

SUBJECT + VERB<sub>complement taking</sub> + POST-VERB<sub>nominal</sub> —  
 adjectival

He looks a fright.

He seems happy.

## 3.1.5 Sub-type .1.5 —

SUBJECT + VERB<sub>senses</sub> + POST-VERB<sub>adjectival</sub> —  
 intransitive

Sugar tastes sweet.

## 3.1.6 Sub-type .1.6 —

SUBJECT + VERB<sub>middle</sub> + POST-VERB<sub>nominal  
adjectival</sub> —

He weighs 200 pounds.

. Large means big.

## 3.2 Type 2 —

SUBJECT + VERB<sub>intransitive</sub> + POST-VERB<sub>adverb</sub> —  
∅

He works (well/here).

## 3.3 Type 3 —

SUBJECT + VERB<sub>object taking</sub> + POST-VERB<sub>object(s)</sub>

## 3.3.1 Sub-type .3.1 —

SUBJECT + VERB<sub>transitive  
gerundive</sub> + POST-VERB<sub>nominal  
-ing form</sub> —

I see him.

I enjoy reading.

## 3.3.2 Sub-type .3.2 —

SUBJECT + VERB<sub>indirect  
object</sub> + POST-VERB<sub>object<sub>1</sub> +  $\frac{to}{for}$  + object<sub>2</sub>  
object<sub>2</sub> + object<sub>1</sub></sub> —

He bought a present for his wife.

He bought his wife a present.





The window was broken (by him/with a stone).

#### 4.0 System of Notation and Numeration.

4.1 The following six sections are concerned with one type of permutation each. The sub-section zero will provide a general description of the construction under discussion, and a brief comment on the form and function of the possible concatenations.

4.2 Concatenations producing ungrammatical or unattested constructions will be prefaced with an asterisk.

4.3 The entire construction will be represented by the letter "Z". Main components of the basic types will be represented by "S", "V", and "PV" for subject, verb and post-verb respectively.

4.4 Subscripts in lower case letters will be abbreviations for details of the main components. For example,  $V_{obj}$  would mean a verb which takes an object,  $PV_{obj}$  would mean a post-verb which is an object. Multiple subscripts signify multiple possibilities (except for the " $V_{\text{past part.}}$ " in type 4 which means past participle of an object-taking verb).

4.5 Subscript numerals have no function beyond that of identifying as syntactically different, two or more forms of the same class

in the same construction, e.g. two separate verbs in the same construction would be labeled  $V_1$  and  $V_2$ .

4.6 Other symbols used include: "+" which is read as "plus", and "—" which means "may be read as". Parentheses enclose the concatenating member, i.e. the concatenator; in Section 8., in which either member may be the concatenator, both are enclosed in parentheses.

4.7 In all permutation sections (Sections 5. - 10.), and in the summary tables (see Section 11.), the first digit represents the section, the second the base type, and the third the concatenating type. Therefore, in some cases a sub-section .1 appears without a sub-section .2.

## 5.0 Basic Types as Subjects of Sentences.

5.0.1 We consider here each of the basic minimal sentence-types used as the subject of a larger sentence. Since the general formula for basic types is  $S + V + PV$ , the general formula for this concatenation would be  $(S_2 + V_2 + PV_2) + V_1 + PV_1$ . Sub-types will not be considered as candidates for concatenation. It will be noted that the examples all may be classed as noun clauses and only occur as subjects of Type 1 sentences. There may be other possibilities, but only these were attested (see Section 1.1.7 above).

5.1.1 Z — (type 1) as S of (type 1) —

$(S + V_{\text{cop.2}} + PV_{\text{comp.2}}) + (V_{\text{cop.1}} + PV_{\text{comp.1}})$  —

That he is a professor is amazing.

Where he is going is not known.

That he is, is wonderful.

What was surprising was the outcome.

5.1.2 Z — (type 2) as S of (type 1) —

$(S + V_{\text{int.}} + PV_{\text{adv.}}) + (V_{\text{cop.1}} + PV_{\text{comp.}})$  —  
 $\emptyset$

Where he works, is surprising.

That he works here is good.

When he works, is not known.

That he works, is good.

What I see in him is nice.

5.1.3 Z — (type 3) as S of (type 1) —

$(S + V_{\text{obj.}} + PV_{\text{obj.}}) + (V_{\text{cop.}} + PV_{\text{comp.}})$  —

That I see him is nice.

5.1.4 Z — (type 4) as S of (type 1) —

$(S + V_{\text{obj.}} + PV_{\text{obj.}} + V_{\text{int.}}) + V_{\text{cop.}} + PV_{\text{comp.}}$  —

What I heard him sing was nice.

That I heard him sing is nice.

That I heard, is nice.

## 5.1.5 Z — (type 5) as S of (type 1) —

$$(S_1 + \underset{\text{get}}{V_{\text{be}}} + \underset{\text{obj.}}{V_{\text{past part.}}} + \underset{\substack{\text{means} \\ \emptyset}}{PV_{\text{agent}}}) + V_{\text{cop.}} + PV_{\text{comp.}} \text{ —}$$

That the window was not broken by the stone is fortunate.

That the window was not broken was fortunate.

What the window was broken with was unimportant.

## 6.0 Basic Types as Verbs of Sentences.

6.0.1 The usage of a basic minimal sentence-type as the verb of a larger basic type would yield a general formula for the resulting concatenation of  $S_1 + (S_2 + V_2 + PV_2) + PV_1$ . No instance of this structure was found with Type 1 as the base form (concatenated member). In all other types there occurred the usage of basic types as verb substitutes, the form of which did not affect the form or function of the total construction. For example, "The class was 'a man is a professor''d, with the first drill.". This sentence was spoken and understood as part of an actual informal conversation with the writer's colleagues. The meaning is that the students were drilled on material in a pattern practice drill which has the sentence "the man is a professor" as the first item. This is an example of a Type 1 sentence as verb of a Type 5 sentence —

$$S_1 + \underset{\text{get}}{V_{\text{be}}} + (S_2 + \underset{\text{obj.}}{V_{\text{cop.}}} + \underset{\substack{\text{means} \\ \emptyset}}{PV_{\text{comp.}}}) \text{past part.} + \underset{\substack{\text{means} \\ \emptyset}}{PV_{\text{agent}}}$$

Since this type of construction is possible but not dependent upon

the form of the verb substitute, this section will be covered by the statement that Type 1 sentences will not accept this sort of verb substitution, but all other basic sentence-types will.

## 7.0 Basic Sentence-Types as Post-verbs of Sentences.

7.0.1 Listed here are some of the possibilities of usage of one basic sentence-type as the post-verb of another basic sentence-type. Note that these include noun and adverb clauses. The general formula for them would be  $S_1 + V_1 + (S_2 + V_2 + PV_2)$ . Types 4 and 5 do not seem capable of accepting another sentence-type as the filler of the post-verb slot, which is apparently restricted to noun and pronoun fillers. For example, in the sentence "I heard John sing.", the noun 'John' is not replaceable by a sentence-type 1 noun clause because it would yield such patterns as \*"I heard (the man's a professor) sing." These concatenations are therefore considered unavailable and unattested, and their individual descriptions omitted.

### 7.1.1 Z — (type 1) as $PV_{comp.}$ of (type 1) —

$S_1 + V_{cop.} + (S_2 + V_{cop.2} + PV_{comp.})_{comp.}$  —

He looked as if he were happy.

It got so hot that he was uncomfortable.

### 7.1.2 Z — (type 2) as $PV_{comp.}$ of (type 1) —

$S_1 + V_{cop.} + (S_2 + V_{int.} + PV_{adv.})_{comp.}$  —  
 $\emptyset$







He ran when the window was broken.

He sang when the stage was set.

7.3.1 Z — (type 1) as PV<sub>obj.</sub> of (type 3) —

$S_1 + V_{obj.} + (S_2 + V_{cop.} + PV_{comp.})_{obj.}$  —

I see he is a professor.

I know he becomes angry.

7.3.2 Z — (type 2) as PV<sub>obj.</sub> of (type 3) —

$S_1 + V_{obj.} + (S_2 + V_{int.} + PV_{adv.})_{obj.}$  —  
 $\emptyset$

I see he works here.

I see that he works here.

7.3.3 Z — (type 3) as PV<sub>obj.</sub> of (type 3) —

$S_1 + V_{obj.} + (S_2 + V_{obj.2} + PV_{obj.})_{obj.}$  —

You see I want to go.

He bought his wife what you see.

7.3.4 Z — (type 4) as PV<sub>obj.</sub> of (type 3) —

$S_1 + V_{obj.} + (S_2 + V_{obj.2} + PV_{obj.} + V_2)_{obj.}$  —

I hear you heard him sing.

I see he had his room cleaned



## 8.1.3 Z — (type 1) + (type 3) —

$$(S_1 + V_{\text{cop.}} + PV_{\text{comp.}}) + (S_2 + V_{\text{obj.2}} + PV_{\text{obj.2}}) —$$

The man is happy when he drinks 7-up.

When he drinks 7-up, the man is happy.

## 8.1.4 Z — (type 1) + (type 4) —

$$(S_1 + V_{\text{cop.}} + PV_{\text{comp.}}) + (S_2 + V_{\text{obj.2}} + PV_{\text{obj.2}} + V_{2.2}) —$$

The man is happy when he hears you sing.

When he hears you sing, the man is happy.

## 8.1.5 Z — (type 1) + (type 5) —

$$(S_1 + V_{\text{cop.}} + PV_{\text{comp.}}) + (S_2 + V_{\text{be}} + V_{\text{past part.}} + PV_{\text{agent}}) —$$

get      obj.

means  
∅

The man was happy when the record was broken.

When the record was broken, the man was happy.

## 8.2.1 Z — (type 2) + (type 1) —

$$(S_1 + V_{\text{int.}} + PV_{\text{adv.}}) + (S_2 + V_{\text{cop.}} + PV_{\text{comp.}}) —$$

∅

He has worked here ever since he was a student.

Ever since he was a student, he has worked here.

## 8.2.2 Z — (type 2) + (type 2) —

$$(S_1 + V_{\text{int.1}} + PV_{\text{adv.}}) + (S_2 + V_{\text{int.2}} + PV_{\text{adv.2}}) —$$

∅

He has worked here ever since he moved here.

Ever since he moved here, he has worked here.

## 8.2.3 Z — (type 2) + (type 3) —

$$(S_1 + V_{\text{int.}} + \underset{\emptyset}{PV_{\text{adv.}}}) + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}}) —$$

He has worked here ever since he saved the boss' daughter.

Ever since he saved the boss' daughter, he has worked here.

## 8.2.4 Z — (type 2) + (type 4) —

$$(S_1 + V_{\text{int.}} + \underset{\emptyset}{PV_{\text{adv.}}}) + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}} + V_2) —$$

He has worked here ever since we heard him sing.

Ever since we heard him sing, he has worked here.

## 8.2.5 Z — (type 2) + (type 5) —

$$(S_1 + V_{\text{int.}} + \underset{\emptyset}{PV_{\text{adv.}}}) + (S_2 + V_{\text{be}} + V_{\text{past part.}} + \underset{\text{means}}{\underset{\emptyset}{PV_{\text{agent}}}}) —$$

get      obj.

He has worked here ever since the window was broken.

Ever since the window was broken, he has worked here.

## 8.3.1 Z — (type 3) + (type 1) —

$$(S_1 + V_{\text{obj.}} + PV_{\text{obj.}}) + (S_2 + V_{\text{cop.}} + \underset{\emptyset}{PV_{\text{comp.}}}) —$$

He hit the wall because he was angry.

Because he was angry, he hit the wall.

## 8.3.2 Z — (type 3) + (type ") —

$$(S_1 + V_{\text{obj.}} + PV_{\text{obj.}}) + (S_2 + V_{\text{int.}} + \underset{\emptyset}{PV_{\text{adv.}}}) —$$

He hit the wall when he was here.

When he was here, he hit the wall.

8.3.3 Z — (type 3) + (type 3) —

$(S_1 + V_{obj.} + PV_{obj.}) + (S_2 + V_{obj.2} + PV_{obj.2})$  —

He hit the wall when he hit the curtain.

When he hit the curtain, he hit the wall.

8.3.4 Z — (type 3) + (type 4) —

$(S_1 + V_{obj.} + PV_{obj.}) + (S_2 + V_{obj.2} + PV_{obj.2} + V_{2.2})$  —

He hit the ceiling when he heard you sing.

When he heard you sing, he hit the ceiling.

8.3.5 Z — (type 3) + (type 5) —

$(S_1 + V_{obj.} + PV_{obj.}) + (S_2 + V_{\substack{be \\ get}} + V_{\substack{past\ part. \\ obj.}} + PV_{\substack{agent \\ means \\ \emptyset}})$  —

He lost his temper when he was hit by the ball.

When he was hit by the ball, he lost his temper.

8.4.1 Z — (type 4) + (type 1) —

$(S_1 + V_{obj.} + PV_{obj.} + V_2) + (S_2 + V_{cop.} + PV_{comp.})$  —

I heard him sing when he was young.

When he was young, I heard him sing.

## 8.4.2 Z — (type 4) + (type 2) —

$$(S_1 + V_{\text{obj.}} + PV_{\text{obj.}} + V_2) + (S_2 + V_{\text{int.}} + PV_{\text{adv.}}) \text{ —}$$

$\emptyset$

I heard him sing when he worked here.

When he worked here, I heard him sing.

## 8.4.3 Z — (type 4) + (type 3) —

$$(S_1 + V_{\text{obj.}} + PV_{\text{obj.}} + V_{1.2}) + (S_2 + V_{\text{obj.}2} + PV_{\text{obj.}2}) \text{ —}$$

I heard him sing when I paid him.

When I paid him, I heard him sing.

## 8.4.4 Z — (type 4) + (type 4) —

$$(S_1 + V_{\text{obj.}} + PV_{\text{obj.}} + V_{1.2}) + (S_2 + V_{\text{obj.}2} + PV_{\text{obj.}2} + V_{2.2}) \text{ —}$$

I heard him sing when I saw him dance.

When I saw him dance, I heard him sing.

## 8.4.5 Z — (type 4) + (type 5) —

$$(S_1 + V_{\text{obj.}} + PV_{\text{obj.}} + V_2) + (S_2 + V_{\text{be}} + V_{\text{past part.}} + PV_{\text{agent}}) \text{ —}$$

$\begin{matrix} \text{get} & \text{obj.} & \text{means} \\ & & \emptyset \end{matrix}$

I heard him laugh when the price was reduced.

When the price was reduced, I heard him laugh.

## 8.5.1 Z — (type 5) + (type 1) —

$$(S_1 + V_{\text{be}} + V_{\text{past part.}} + PV_{\text{agent}}) + (S_2 + V_{\text{cop.}} + PV_{\text{comp.}}) \text{ —}$$

$\begin{matrix} \text{get} & \text{obj.} & \text{means} \\ & & \emptyset \end{matrix}$

The price was raised when he was hungry.

When he was hungry, the price was raised.

## 8.5.2 Z — (type 5) + (type 2) —

$$(S_1 + V_{\text{get}} + V_{\text{obj.}} + V_{\text{past part.}} + PV_{\text{agent}}) + (S_2 + V_{\text{int.}} + PV_{\text{adv.}}) —$$

$\begin{matrix} \text{means} \\ \emptyset \end{matrix}$

The price was reduced when he sang here.

When he sang here, the price was reduced.

## 8.5.3 Z — (type 5) + (type 3) —

$$(S_1 + V_{\text{get}} + V_{\text{obj.}} + V_{\text{past part.}} + PV_{\text{agent}}) + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}}) —$$

$\begin{matrix} \text{means} \\ \emptyset \end{matrix}$

The price was reduced when he sang ballads.

When he sang ballads, the price was reduced.

## 8.5.4 Z — (type 5) + (type 4) —

$$(S_1 + V_{\text{get}} + V_{\text{obj.}} + V_{\text{past part.}} + PV_{\text{agent}}) + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}} + V_{2.2}) —$$

$\begin{matrix} \text{means} \\ \emptyset \end{matrix}$

The price was reduced when they heard him complain.

When they heard him complain the price was reduced.

## 8.5.5 Z — (type 5) + (type 5) —

$$(S_1 + V_{\text{get}} + V_{\text{obj.}} + V_{\text{past part.}} + PV_{\text{agent}}) + (S_2 + V_{2\text{be}} + V_{2\text{past part.}} + PV_{2\text{agent}}) —$$

$\begin{matrix} \text{means} \\ \emptyset \end{matrix}$

The first price was reduced when the costs were lowered.

When the costs were lowered, the first price was reduced.

## 9.0 Basic Types Between Subject and Verb.

9.0.1 Here we consider occurrence of basic types in the post-subject position of a basic type. This yields a general formula of  $S_1 + (S_2 + V_2 + PV_2) + V_1 + PV_1$ . This category seems to include adjective and adverb clauses, and occurs in all combinations of possibilities.

9.1.1 Z — (type 1) as post-S of (type 1) —

$$S_1 + (S_2 + V_{\text{cop.2}} + PV_{\text{comp.2}}) + V_{\text{cop.1}} + PV_{\text{comp.1}} \text{ ---}$$

The man, who is young, is tall.

The man, when he is ready, becomes a professor.

The men, where I am going, are all professors.

9.1.2 Z — (type 2) as post-S of (type 1) —

$$S_1 + (S_2 + V_{\text{int.}} + PV_{\text{adv.}}) + V_{\text{cop.}} + PV_{\text{comp.}} \text{ ---}$$

$\emptyset$

The man who works here is strong.

The man, because he works here, is strong.

The man, when working here, is strong.

9.1.3 Z — (type 3) as post-S of (type 1) —

$$S_1 + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}}) + V_{\text{cop.}} + PV_{\text{comp.}} \text{ ---}$$

The man whom I saw was a professor.

The man, when I saw him, was a professor.

9.1.4 Z — (type 4) as post-S of (type 1) —

$$S_1 + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}} + V_{2.2}) + V_{\text{cop.}} + PV_{\text{comp.}} \text{ ---}$$



The man, when I heard him sing, was a professor.

The man, whom I heard sing, is a professor.

9.1.5 Z — (type 5) as post-S of (type 1) —

$$S_1 + (S_2 + V_{\text{be}} + V_{\text{past part.}} + PV_{\text{agent}}) + V_{\text{cop.}} + PV_{\text{comp.}} \text{ ---}$$

get
obj.
means
∅

The man, who was called to the telephone, is clever.

The man, when the window was fixed, was happy.

9.2.1 Z — (type 1) as post-S of (type 2) —

$$S_1 + (S_2 + V_{\text{cop.}} + PV_{\text{comp.}}) + V_{\text{int.}} + PV_{\text{adv.}} \text{ ---}$$

∅

The man, who is a professor, works here.

The man, when he is well, works here.

9.2.2 Z — (type 2) as post-S of (type 2) —

$$S_1 + (S_2 + V_{\text{int.2}} + PV_{\text{adv.2}}) + V_{\text{int.1}} + PV_{\text{adv.1}} \text{ ---}$$

∅

The man who works here works well.

The men, working here, work well.

9.2.3 Z — (type 3) as post-S of (type 2) —

$$S_1 + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}}) + V_{\text{int.}} + PV_{\text{adv.}} \text{ ---}$$

∅

John, if I watch him, works hard.

John, who buys apples, lives here.

## 9.2.4 Z — (type 4) as post-S of (type 2) —

$$S_1 + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}} + V_{2.2}) + V_{\text{int.}} + PV_{\text{adv.}} \text{ —}$$

$\emptyset$

John, whom you heard sing, lives here.

John, when he is heard singing, blushes.

## 9.2.5 Z — (type 5) as post-S of (type 2) —

$$S_1 + (S_2 + V_{\text{be}} + V_{\text{past part.}} + PV_{\text{agent}}) + V_{\text{int.}} + PV_{\text{adv.}} \text{ —}$$

$\begin{array}{c} \text{get} \quad \text{obj.} \\ \text{means} \\ \emptyset \end{array}$

$\emptyset$

The boy, when the window was broken, hid there.

## 9.3.1 Z — (type 1) as post-S of (type 3) —

$$S_1 + (S_2 + V_{\text{cop.}} + PV_{\text{comp.}}) + V_{\text{obj.}} + PV_{\text{obj.}} \text{ —}$$

I, who am a professor, see him.

I, when I am a professor, teach him.

## 9.3.2 Z — (type 2) as post-S of (type 3) —

$$S_1 + (S_2 + V_{\text{int.}} + PV_{\text{adv.}}) + V_{\text{obj.}} + PV_{\text{obj.}} \text{ —}$$

$\emptyset$

The man who works here got hit.

The man, when he works, gets paid.

## 9.3.3 Z — (type 3) as post-S of (type 3) —

$$S_1 + (S_2 + V_{\text{obj.2}} + PV_{\text{obj.2}}) + V_{\text{obj.1}} + PV_{\text{obj.1}} \text{ —}$$

The man who hit him befriended him.

The man, when he showed him, convinced him.

9.3.4 Z — (type 4) as post-S of (type 3) —

$$S_1 + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}} + V_2) + V_{\text{obj.}2} + PV_{\text{obj.}2} \text{ —}$$

John, whom you heard sing, hired me.

John, when you ask him to sing, sings ballads.

9.3.5 Z — (type 5) as post-S of (type 3) —

$$S_1 + (S_2 + \underset{\text{get}}{V_{\text{be}}} + \underset{\text{obj.}}{V_{\text{past part.}}} + \underset{\text{means}}{PV_{\text{agent}}}) + V_{\text{obj.}} + PV_{\text{obj.}} \text{ —}$$

$\emptyset$

The glass that was broken cut him.

The boy who was rewarded, won the event.

9.4.1 Z — (type 1) as post-S of (type 4) —

$$S_1 + (S_2 + V_{\text{cop.}} + PV_{\text{comp.}}) + V_{\text{obj.}} + PV_{\text{obj.}} + V_2 \text{ —}$$

I, who am an expert, heard him sing.

They, becoming experts, heard him sing.

9.4.2 Z — (type 2) as post-S of (type 4) —

$$S_1 + (S_2 + V_{\text{int.}} + \underset{\emptyset}{PV_{\text{adv.}}}) + V_{\text{obj.}} + PV_{\text{obj.}} + V_{1.2} \text{ —}$$

John, who works here, heard him sing.

John, when working there, heard him sing.

9.4.3 Z — (type 3) as post-S of (type 4) —

$$S_1 + (S_2 + V_{\text{obj.}2} + PV_{\text{obj.}2}) + V_{\text{obj.}1} + PV_{\text{obj.}1} + V_2 \text{ —}$$

I, when I see him, will hear him sing.

I, who see him, hear him.

## 9.4.4 Z — (type 4) as post-S of (type 4) —

$$S_1 + (S_2 + V_{\text{obj.2}} + PV_{\text{obj.}} + V_{2.2}) + V_{\text{obj.1}} + PV_{\text{obj.1}} + V_{1.2} \text{ —}$$

I, who heard him sing, saw him dance.

You, while hearing him sing, saw him dance.

## 9.4.5 Z — (type 5) as post-S of (type 4) —

$$S_1 + (S_2 + \underset{\text{get}}{V_{\text{be}}} + \underset{\text{obj.}}{V_{\text{past part.}}} + \underset{\substack{\text{agent} \\ \text{means} \\ \emptyset}}{PV_{\text{agent}}}) + V_{\text{obj.}} + PV_{\text{obj.}} + V_{1.2} \text{ —}$$

I, since the vase was cracked, had it repaired.

## 9.5.1 Z — (type 1) as post-S of (type 5) —

$$S_1 + (S_2 + \underset{\text{cop.}}{V_{\text{cop.}}} + \underset{\text{comp.}}{PV_{\text{comp.}}}) + \underset{\text{get}}{V_{\text{be}}} + \underset{\text{obj.}}{V_{\text{past part.}}} + \underset{\substack{\text{agent} \\ \text{means} \\ \emptyset}}{PV_{\text{agent}}} \text{ —}$$

John, who was a janitor, was promoted.

John, when he became a professor, was elated.

## 9.5.2 Z — (type 2) as post-S of (type 5) —

$$S_1 + (S_2 + \underset{\emptyset}{V_{\text{int.}}} + \underset{\emptyset}{PV_{\text{adv.}}}) + \underset{\text{get}}{V_{\text{be}}} + \underset{\text{obj.}}{V_{\text{past part.}}} + \underset{\substack{\text{agent} \\ \text{means} \\ \emptyset}}{PV_{\text{agent}}} \text{ —}$$

John, who worked here, was promoted.

John, when he worked here, was praised often.

## 9.5.3 Z — (type 3) as post-S of (type 5) —

$$S_1 + (S_2 + \underset{\text{obj.}}{V_{\text{obj.}}} + \underset{\text{obj.}}{PV_{\text{obj.}}}) + \underset{\text{get}}{V_{\text{be}}} + \underset{\text{obj.}}{V_{\text{past part.}}} + \underset{\substack{\text{agent} \\ \text{means} \\ \emptyset}}{PV_{\text{agent}}} \text{ —}$$

John, when I recommended him, was promoted.

John, whom I recommended, was promoted.

9.5.4 Z — (type 4) as post-S of (type 5) —

$$S_1 + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}} + V_2) + V_{\text{be}} + V_{\text{past part.}} + PV_{\text{agent}} \text{ —}$$

get
obj.
means  
∅

The window I saw him install was cracked.

The window, when I saw him installing it, was cracked.

9.5.5 Z — (type 5) as post-S of (type 5) —

$$S_1 + (S_2 + V_{\text{be2}} + V_{\text{past part.2}} + PV_{\text{agent2}}) + V_{\text{be1}} + V_{\text{past part.1}} + PV_{\text{agent1}} \text{ —}$$

means
get
obj.
means  
∅
∅

The window, which was broken by the stone, was fixed by the repairman.

The window, when it was broken, was fixed .

10.0 Basic Types Between Verb and Post-verb.

10.0.1 Positioning of a basic sentence-type between the verb and post-verb of another basic sentence-type under the general formula

$$S_1 + V_1 + (S_2 + V_2 + PV_2) + PV_1$$

was found only when a Type 1 sentence was the base. The others will not be presented individually. Type 2 sentences as base form were eliminated because the adverbial post-verb became a modifier of the concatenator rather than remaining part of the base form.

10.1.1 Z — (type 1) before PV of (type 1) —

$$S_1 + V_{\text{cop.}} + (S_2 + V_{\text{cop.2}} + PV_{\text{comp.2}}) + PV_{\text{comp.1}} \text{ ---}$$

The man is, while he is a professor, influential.

The man is, being a professor, influential.

The man seems, and he is a professor, to be an authority.

10.1.2 Z — (type 2) before PV of (type 1) —

$$S_1 + V_{\text{cop.}} + (S_2 + V_{\text{int.}} + PV_{\text{adv.}}) + PV_{\text{comp.}} \text{ ---}$$

∅

The man is, while we work here, generous.

He is, working here, well paid.

He is, when he works here, under central authority.

10.1.3 Z — (type 3) before PV of (type 1) —

$$S_1 + V_{\text{cop.}} + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}}) + PV_{\text{comp.}} \text{ ---}$$

He seemed, when I saw him, to be happy.

He was, when I saw him in excellent health.

10.1.4 Z — (type 4) before PV of (type 1) —

$$S_1 + V_{\text{cop.}} + (S_2 + V_{\text{obj.}} + PV_{\text{obj.}} + V_2) + PV_{\text{comp.}} \text{ ---}$$

The man was, when I saw him perform, brilliant.

His father was, when he wanted me to go, threatening.

10.1.5 Z — (type 5) before PV of (type 1) —

$$S_1 + V_{\text{cop.}} + (S_2 + V_{\text{be}} + V_{\text{past part.}} + PV_{\text{agent}}) + PV_{\text{comp.}} \text{ ---}$$

get    obj.                    means  
∅

He was, when the window was broken, afraid.

## 11.0 Summary.

11.1 The limitations of the study were that only concatenations of two basic sentences were considered, one sentence having a privative function upon the other. These were classified according to the syntactic position of one (the concatenator) in, or next to, the other (the concatenated member), and according to which basic sentence-types were involved in each relationship. Observations were made as to what function the concatenator had in the sentence.

11.2.0 Sufficient patterning has emerged to make an order apparent. The summary below may be used for an over-all view of the constructions considered.

11.2.1 Basic types posited as subjects of basic types, (Section 5.):

5.1.1	5.1.2	5.1.3	5.1.4	5.1.5
*5.2.1	*5.2.2	*5.2.3	*5.2.4	*5.2.5
*5.3.1	*5.3.2	*5.3.3	*5.3.4	*5.3.5
*5.4.1	*5.4.2	*5.4.3	*5.4.4	*5.4.5
*5.5.1	*5.5.2	*5.5.3	*5.5.4	*5.5.5

Only Type 1 appears to be able to accept other types as subjects.

11.2.2 Basic types posited as verbs of basic types, (Section 6.):

*6.1.1	*6.1.2	*6.1.3	*6.1.4	*6.1.5
6.2.1	6.2.2	6.2.3	6.2.4	6.2.5
6.3.1	6.3.2	6.3.3	6.3.4	6.3.5
6.4.1	6.4.2	6.4.3	6.4.4	6.4.5
6.5.1	6.5.2	6.5.3	6.5.4	6.5.5

No instance was found where one minimal sentence-type was being used in the function of copulative verb, nor as an object-taking verb in Type 4. Other possibilities may be rejected by some speakers. In the forms where it is usable, the type used has no bearing on the construction.

11.2.3 Basic types posited as post-verbs of basic types,  
(Section 7.):

7.1.1	7.1.2	7.1.3	7.1.4	7.1.5
7.2.1	7.2.2	7.2.3	7.2.4	7.2.5
7.3.1	7.3.2	7.3.3	7.3.4	7.3.5
*7.4.1	*7.4.2	*7.4.3	*7.4.4	*7.4.5
*7.5.1	*7.5.2	*7.5.3	*7.5.4	*7.5.5

11.2.4 Basic types posited in lineal order, (Section 8.):

8.1.1	8.1.2	8.1.3	8.1.4	8.1.5
8.2.1	8.2.2	8.2.3	8.2.4	8.2.5
8.3.1	8.3.2	8.3.3	8.3.4	8.3.5
8.4.1	8.4.2	8.4.3	8.4.4	8.4.5
8.5.1	8.5.2	8.5.3	8.5.4	8.5.5



These constructions also include many of those usually called compound or complex sentences.

11.2.5 Basic Sentence-types posited between subject and verb of a basic type, (Section 9.):

9.1.1	9.1.2	9.1.3	9.1.4	9.1.5
9.2.1	9.2.2	9.2.3	9.2.4	9.2.5
9.3.1	9.3.2	9.3.3	9.3.4	9.3.5
9.4.1	9.4.2	9.4.3	9.4.4	9.4.5
9.5.1	9.5.2	9.5.3	9.5.4	9.5.5

These include post-subject slot adverbial and adjectival clauses.

11.2.6 Basic Sentence-types posited between verb and post-verb of a basic Sentence-type, (Section 10.):

10.1.1	10.1.2	10.1.3	10.1.4	10.1.5
*10.2.1	*10.2.2	*10.2.3	*10.2.4	*10.2.5
*10.3.1	*10.3.2	*10.3.3	*10.3.4	*10.3.5
*10.4.1	*10.4.2	*10.4.3	*10.4.4	*10.4.5
*10.5.1	*10.5.2	*10.5.3	*10.5.4	*10.5.5

In Type 1 this construction may be used to fill several functions but does not occur with other types as base form.

11.3 A more complete model for the analysis of English sentences would involve taking into account the sub-types of the basic sentences, the functions, and the means of signaling function, as well as the types of concatenation precluded from this study, i.e.,

concatenations of more than two members and/or involving additive function.

## FOOTNOTES

<sup>1</sup> Leo Engler, in an unpublished series of lectures at Kansas State University, (Spring 1963). cf. Chomsky, Roberts, Joos, Pike, Wells, cited below.

<sup>2</sup> Martin Joos, The English Verb: Form and Meaning (Madison, 1965).

<sup>3</sup> Hans Glinz, Die innere Form des Deutschen: Eine neue deutsche Grammatik (Bern, 1947).

<sup>4</sup> Leo Engler, "Problems in English/German Contrastive Analysis," unpublished dissertation, University of Texas, 1962. cf. Kufner (CAL)

<sup>5</sup> Rulon Wells, "Immediate Constituents", Language 23.81-117 (1947)

<sup>6</sup> Henry Allan Gleason, An Introduction to Descriptive Linguistics (New York, 1961), p. 133.

<sup>7</sup> Immediate constructions are "... significant groups of words or morphemes.". Gleason, op. cit., p. 132.

<sup>8</sup> Ibid., p. 133.

<sup>9</sup> Noam Chomsky, Syntactic Structures ('s-Gravenhage, 1957).

<sup>10</sup> Leo Engler and Elaine Hannah, N.S.F. Institutional Grant 50096 No. 0794.

<sup>11</sup> Paul Roberts, English Syntax (New York, 1964).

<sup>12</sup> Paul Garvin, On Linguistic Method ('s-Gravenhage, 1964).

- 13 Paul Roberts, loc. cit.
- 14 Garvin, op. cit., p. 64.
- 15 Etsko Kruisinga, A Hand-book of Present-day English, Part II English Accidence and Syntax 3 (Groningen, 1932).
- 16 Ibid., p. 497.
- 17 Ibid., p. 498.
- 18 Paul Roberts, Understanding Grammar (New York, 1954).
- 19 Ibid., p. 305.
- 20 Charles C. Fries, The Structure of English (New York, 1952).
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- 22 W. Nelson Francis, The Structure of American English (New York, 1958).
- 23 Otto Jespersen, Modern English Grammar, 6 vols. (Heidelberg, 1909-41).
- 24 Fries, op. cit.
- 25 Joos, op. cit.
- 26 Paul Garvin, "A Study of Inductive Method in Syntax", Word 18.107-120 (1962).

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## ANALYSIS OF CONCATENATIONS

### THE STRUCTURES OF NON-MINIMAL SENTENCES IN ENGLISH

Using a combination of concepts borrowed from three theories of grammar current in descriptive linguistics, i.e., slot-filler display, immediate constituent analysis, and generative grammar, Engler develops an analysis of English which posits five basic, or minimal, sentence-types. Each of these minimal sentence-types may be used alone as an independent utterance with minimal fillers in the syntactic slots or with the slot fillers expanded in various ways, or combined with others in concatenations, to form the utterances of spontaneous spoken General American English.

Engler suggests that, if these minimal sentence-types and their expansions and transformations account for all the fundamental syntactic patterns of English, then any utterance in English, no matter how long or rambling, could be analyzed out as basically one of these sentence-types, or several of them combined or "concatenated" in larger constructions. In the latter case, he suggests as categories of concatenation, that minimal sentence-types may be strung together like a string of beads by juxta-position, coordination, or subordination, or one embedded or encapsulated inside another as part of the process of expansion of the filler within the slot, or expansion of the sentence-type itself by the addition of slots.

During application of this model to an analysis of children's speech, it became apparent that while Engler's suggested categories of

concentration would be useful, they are in need of refinement and augmentation. This study is intended to contribute to the development of such an improved model.

The limitations of the study were that only concatenations of two basic sentences were considered, one sentence having a privative function upon the other. These were classified according to the syntactic position of one (the concatenator) in, or next to, the other (the concatenated member), and according to which basic sentence-types were involved in each relationship. Observations were made as to what function the concatenator had in the sentence. Summary tables are included providing a synopsis of these concatenations.