

MAKING GRAMMAR WHILE IT HAPPENS TOWARD A GRAMMAR BASED ON STATISTICS

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Transformational grammar's sudden arrival at the turn of the nineteen-sixties seems to have been of pivotal importance in more ways than one. Its taxonomic methodology provided a major breakthrough in linguistics, but it also encouraged grammar's complete rejection by teachers and professors who both resented its analytic demands and correctly recognized its limited pedagogical value. Few could do more in applying its assumptions than generate a simple clause, then convert it into the passive voice, and soon it became evident that this particular ability had little to do with the improvement of students' writing skills. During the previous decade, structural linguistics had supplanted prescriptive grammar, but with something of a tradeoff in benefits that encouraged an eclectic approach combining the two. However, transformational grammar's emergence as an additional step beyond structural linguistics represented a free fall in pedagogical relevance. And the effort to provide a synthesis among the three carried so much theoretical baggage that it stretched intellectual demands to an excessive degree, giving the enemies of grammar the needed opportunity to shut down the entire venture. They had always harbored doubts. This was their chance, and they succeeded.

Traditional grammars emphasized by college handbooks exemplified by the Perrin and Harbrace editions had been useful to students to a certain extent, and teachers' editions summarizing traditional grammar, for example *Understanding Grammar* (Harper, 1954), by Paul Roberts, and *The Sentence and Its Parts* (Chicago, 1961), by Ralph Long, had dealt with the concepts on a more advanced basis for teachers and ambitious students. For those with further interest, the scholarly traditional grammars of such figures as George Curme and Otto Jespersen were available.¹ Then came the major breakthrough in structural linguistics inspired by Charles Fries in *American English Grammar* (Appleton-Century, 1940) and *The Structure of English* (Harcourt Brace, 1952), and its assumptions were adopted in basic textbooks by Paul Roberts and others. But suddenly transformational grammar came to the fore beginning with Chomsky's *Syntactic Structures* (Mouton, 1957--later editions, 1962, 1963, 1964, 1965, etc.) Roberts, among others, tried to adjust to the transition, and, like the stock market, grammar skyrocketed for a couple of years as a major pedagogical innovation, then crashed.

It may be conceded that advocates of traditional grammar too often exaggerated prescriptive demands regarding such niggling problems as the split infinitive, dangling modifier, and comma fault--also the tell-tale *it's* apostrophe in the possessive case. It may also be conceded, that the structural approach that had succeeded traditional grammar neglected all the rules and exceptions explored in depth by the scholarship of Curme and Jespersen. Nevertheless, there was room for a useful balance between the two approaches, since the emphasis on structure did not preclude the acknowledgement of historic variants. With transformational grammar, on the other hand, linguistic analysis totally predominated. Language ceased to be what actually happens when we use words to express ourselves and became instead what can be mapped out as the

final position of words in a sentence produced on a strictly deductive basis. Essential to the transformational approach was analytic facility in describing language as a kind of mathematical system consisting of generative rules followed by transformational rules. No longer were experienced composition teachers supposed to emphasize good writing, but to serve as amateur theoreticians belaboring immediate constituents and algorithmic derivations, more often than not on a two-dimensional blackboard just big enough to fill fifty minutes of class time. And if deductive sentential calculus inspired by Descartes and Euclidian geometry fell short of the task, the concept of innate language capacity elaborated by Chomsky in his later books could carry speculative inquiry forward into new and more advanced levels of analysis.

As to be expected, the entire edifice toppled with the promotion of “whole language” theory that totally eliminated grammar from consideration by reducing pedagogy to the helpful task of improving student prose, but not to such an extent that non-competitive students might be discouraged by the experience. The fashionable whole-language teacher’s mantra, “Very interesting here, but couldn’t we . . .” became no less automatic than the generic “. . . But what do you think?” from run-of-the-mill grammar psychologists inspired by Carl Rogers. And not only was grammar eliminated from middle and secondary-school teaching, but also from the English education curriculum at the college level on the assumption that the best way to discourage its future application was to keep teachers themselves ignorant of its principles. This was as if a mechanic might do a better job at fixing a car when his mind is unencumbered by names and concepts not directly relevant to changing a gasket or pulling a motor. Inevitably, a dumbing down occurred in English education encouraged by its most prominent leadership. From excessive demands there was a rapid transition to few demands if any. Reduced performance levels might already have become a problem among students, but teachers could go with the flow by adopting the principle that it was better, after all, for students to write at length ignorant of normative standards that might diminish their confidence in their ability. True, this logic might have made sense for non-motivated students and below-average students at advanced levels. However, it was not long before many students wrote almost nothing at all, and in prose replete with deficiencies they neither recognized nor wanted to know about.

Thus, in effect, transformational grammar’s exceptional rigor paradoxically set the stage for less rigorous standards in teaching composition across the nation, just as the mystifications of French deconstructionism (also a product of the mid-sixties) lured such fields as law, anthropology and literary criticism into a theoretical *leul de sac* that set the stage for simplistic cultural relativism at the expense of analytic sufficiency. True, grammar had always seemed to impose demands in excess of its usefulness, but some of its applications were already beneficial for students--most obviously, for example, with sentence-combining exercises. But in fact a good deal more seems possible even today. For, unlike phlogiston, grammar does truly exist--it lives and breathes inside all sentences. It cannot be wished out of existence. So the question remains how to unlock its energy in good prose style.

2.

The limitations of transformational linguistics are perhaps best clarified in light of the basic assumptions of Ferdinand de Saussure, an eminent French linguist at the turn of the twentieth century who proposed a basic dichotomy between *parole* (or word in the process of expres-

sion) and *langue* (or language as a system of innate categories). Diagrammed on a quadrant, *parole* constitutes linear horizontal verbal behavior--words and groups of words that advance like pearls in a necklace in syntagmatic concatenation from left to right, from beginning to end. This sequence is appropriately stretched out on what is described as the axis of successions, while *langue*, the lexicon of options available for use is signified by a grab bag of operations that can be retrieved from the vertical axis of simultaneities. In its entirety, I must insist, this lexicon includes both words and grammatical possibilities for putting these words in combination. Each word is syntagmatic because of its location in sequence on the axis of succession, but the retrieval of a word or grammatical unit that combines words also manifests choice-making (to say *admire* instead of *love*, to use a prepositional phrase instead of a clause, etc.) from a full assortment of possibilities provided by *langue* on the vertical axis of simultaneities. In the realm of *langue*, on the other hand, each word may be considered simultaneous to others in the sense that they coexist in one's memory at the same time, and the same distinction applies to units of grammar that can substitute for each other on the same basis. Conveniently, Saussure's paradigm for a single word as a "signifier" may also be seen as a vertical operation on the axis of simultaneities, for example the idea of a horse linked with the word *horse* (actually depicted by Saussure), but each word also serves as a referent to nearby words on the axis of successions, for example the adjacent words *very* and *fast* preceding *horse*. Here referentiality suggests the vertical dynamics of metaphorthat can be displaced from the axis of simultaneities to the axis of successions by the poetic figure of metonymy.² As a result, grammar can be seen both as a generative formulation of sentences on the axis of simultaneities explained by transformational linguistics, and as a complex interplay of words organized on the axis of successions with a level of freedom that is difficult to explain by analysis exclusively devoted to the axis of simultaneities. In any case it would be a mistake to separate words and grammar by limiting each to its own axis, since both apply to both.

The primary deficiency of transformational grammar, I would argue, is that it neglects spontaneity in the choice of words and phrases in favor of a step-by-step construction on the axis of simultaneities to produce paradigmatic sufficiency on the axis of contiguity. As a result achieved wholes (or strings) become more important than the actual process of making sentences preliminary to this achievement. In effect, transformational grammar emphasizes the analysis of completed sentences that may be considered "dead" in the sense that they have already been brought to their conclusion, necessarily prior to their analysis. In contrast, what might be described as a "living" sentence takes place while it occurs. Its behavior as *parole* involves making active choices while being told or written, and also, to a more limited extent, while being understood by the auditor/reader. For example, Secretary of Defense Donald Rumsfeld's brief sentence, "Stuff happens," was alive when he said it to justify looting while U.S. troops invaded Baghdad, as was Cicero's brief sentence, *cui bono* ("to whom the good?" i.e., "who profits from this?") when he first said it. Both sentences also come alive again when quoted, even in translation. Otherwise, they are moribund, whatever the validity of their insight. The problem, however, when we submit to analysis a living sentence--as opposed to its carcass--is that all the tentative grammatical scaffolding that go into its construction while in progress is ephemeral as it juggles into near simultaneity for each particular context, then gets swept from consciousness in order to make room for later wording. Some words penetrate the conscious mind before their inclusion in the sentence, but the retrieval of others is almost automatic for the purpose of contextualizing those already in mind. The use of articles and conjunctions, for example, which

usually convey sentence logic at the simplest level, usually occurs without a second thought, and the same with prepositions despite refinements in their use suggestive of a primitive phenomenology (*of-ness, from-ness, after-ness, etc.*). Similarly, interjections and phatic utterances (*uh, like, you know, etc.*) express personal response little more than conceded by grammar, the latter for holding attention while providing more time to go on to the next construction.

This intricate assortment of habits and strategies brought into play during the actual creation of sentences during their utterance seems totally ignored by linguists and grammarians in their pursuit of taxonomic answers that emphasize the whole as an achieved structure at the expense of its dynamics of attainment. On one hand they feature the complete repository of rules accessible to the language community (*langue*) and on the other hand they feature the abstract realization of a completed sentence as a terminal string--i.e., the sentence achieved. However, this transition from one self-sufficient paradigm to another is effected without any consideration for the expressive interplay of options that occurs in drawing upon *langue* to express ideas and feelings during their utterance dominated by *parole*. This is the zone of verbal accomplishment in which language is energized even in the dullest late nineteenth century sermon, the most run-of-the-mill minutes of an academic meeting.

Transformational grammar is prevented from clarifying what happens at this level of verbal behavior simply because it emphasizes an artificial generative model strictly based on what amounts to mathematical demonstration. Sentence formation is limited to operations on a tree stemma through a rigorous step-by-step demonstration rather than any kind of a progressive forward momentum among words and word combinations to express ideas and feelings. This is a big difference. As Rousseau argued in *Emile*, Euclid's geometric demonstrations might have established the validity of various theorems and axioms, but his impressive reconstructions had little to do with the initial heuristic ingenuity that first established the overlapping spatial relationships involved. Similarly, Poincare promoted intuitive speculation as the key to scientific discovery, as opposed to his contemporary Karl Weierstrass's emphasis on rigorous analysis; and Einstein, unlike Newton, delegated to others the task of formulating the necessary mathematics to support his theory of relativity. Theory was off the top of his head--mathematics came later and by others. Pretty much the same distinction puts Chomsky in the camp of Euclid and Weierstrass, since his approach has almost nothing to do with the actual creation of sentences during the process of expressing them. While being told, the sentence at least seems relatively intuitive, but in its retrospective analysis it may be analyzed on a strictly analytical basis as emphasized by Chomsky.

Transformational grammar accordingly interprets the linear genesis of sentences as a taxonomic paradigm derivative of innate generative principles that are presumably imbedded in human consciousness relevant to the task of producing language. As explained by Chomsky, paraphrasing the nineteenth century German scientist Wilhelm Humboldt--

The form of a language, the scheme for its grammar, is to a large extent given [in the human mind], though it will not be available for use without appropriate experience to set the language-forming processes into operation.³

Just a few pages later Chomsky summarizes this assumption as a hypothetical likelihood--

Thus it may well be that the general features of language structure reflect, not so much the course of one's experience, but rather the general character of one's capacity to acquire language--in the traditional sense, one's innate ideas and innate principles.⁴

Granted, an innate capacity for language probably exists that is inaccessible to animals except on the most primitive basis; and, granted, language output expressive of this potential capacity may be submitted to taxonomic interpretation. However, this capacity need not be limited to the holistic manufacture of completed sentences. It also provides a determinate role during any kind of verbalization, including sentence fragments and the construction of sentences without any clear sense of an ending until the sentence is finally brought to a close. This syntactic freedom is no less innate than the fully generated sentence as explained by Chomsky, and it happens more often than many of us realize. Syntax might be innate in the sense that it exercises a strictly human mental capacity, but the application of this capacity is entirely by means of habit derivative of memory (whether conscious or preconscious), thus a matter of verbal behavior rather than any kind of Kantian synthesis. It is as if Chomsky has tried to match Descartes' hard-and-fast rules for the direction of the mind with rules of his own for the direction of sentences. But his rules don't work, at least while the sentence is in progress. True, this behavior might ultimately derive from the innate potential of human intelligence, but it is important to recognize that more immediate capabilities are brought to bear in drawing upon this potential to make language happen. Chomsky might have won the battle in his critique of B.F. Skinner's theory of language behavior, but behaviorism remains the ultimate desideratum.⁵ If Skinner's theory falls short, something better should be found for emphasizing behavior even in the field of grammar.

Such transformationalist contributions as Robert Lees' *The Grammar of English Nominalizations* (Mouton, 1968) bear useful analysis, and Chomsky himself has sought to bridge the gap since the very beginning of his career. Nevertheless, his vision of a "universal grammar" emphasizes a two dimensional algorithmic paradigm that imposes on a vertical stemma a horizontal organization of words that add up to a full sentences one step at a time, as opposed to the actual occurrence of sentences one word at a time. If process is given any role by transformational grammar, it is in the context of this stemma, rules compounded by other rules, not by sustained effort to bring meaning to its acceptable closure with the most appropriate words and phrases. In effect, analysis becomes the autopsy of verbal anatomy without taking into account its physiology and how it once lived and died. The sentence's final "there you have it" is rendered analytic thoroughness except for the word-for-word, phrase-by-phrase choices that go into the process "how to get there" while sentences advance to closure.

In other words, the algorithmic derivation of sentences from any finite system of rules such as emphasized by transformational grammar fails to take into account the one-dimensional forward momentum of language when incessant new possibilities oblige multiple choices often well short of the sentence's completion. More often than not, those who talk and write don't exactly know where they are going when they start. But this does not matter, for the pleasure is in the journey. A swath of local contexts accordingly dominates syntax through rapid quest behavior even regarding the most trivial choices, for example *little* instead of *tiny* or *wizened* in the phrase "a little old man." Or an expansion could suddenly present itself, "a small wizened old

man,” or a further expansion could necessitate shifting some of the words into the appositive position in order to include others: “an old man, stooped and barely five feet tall,” or into an attributive sentence modifier, “Stooped and barely five feet tall, a wizened old man . . . In each instance choices glide into new choices, making room for newer choices yet. How possibly can a restrictive and essentially Euclidian assortment of hard and fast rules capture the rapid medley of selections that are made as we skate forward in expressing ourselves? For multiple options almost instantaneously occur on a feedback feed-forward basis--promises, fulfillments, and new promises and fulfillments. Recent words swiftly settle old grammatical obligations while obliging new obligations and making room for still others. In and out the process grows on itself as it surges forward in time. This is what happens with syntax that can and ought to be investigated.

As an exception to the rule, it may be conceded that good poetry compounds the task of linear momentum by reasserting the importance of local juxtapositions at the expense of syntax through cadence, meter, vowel leading, alliteration, and other such devices which counterbalance the more conventional array of grammatical operations for giving meaning to the sentence as a whole. Rhyme also deemphasizes syntactic obligations by introducing competitive feed-forward expectations independent of sentence construction. As a result, poetic “thickness” (or density) actually occurs that may be admired for augmenting the sense of immediacy, giving poems the impact of verbal artifacts rather than informative declarations. This may be observed in the imagery and lush sound pattern of Shakespeare, Keats, and Hopkins’ poetry, but perhaps most obviously in Milton’s baroque grandiloquence that obfuscates the tortuous and ultimately irrelevant Latinate grammatical constructions he used to justify its sequence. In contrast, the lucid versification of Pope, Wordsworth, Whitman, and Frost features syntactic transparency to emphasize information and its accurate interpretation.

3.

The supposed advantage of transformational grammar is that it provides a finite assortment of rules and constraints that permit the creation of a finite sentence from an infinite number of possibilities. And perhaps it does, but without having taken into account everything that happens while this transition occurs. Also implicit is the misleading assumption that the full design of a sentence is (or ought to be) submitted to analysis independent of its expression, excluding from consideration the total array of feedback possibilities that erupt with the expression of each new word or phrase while a sentence is carried forward, and often without any idea where the sentence will end, or even, for that matter, exactly where it began (as exemplified by this particular sentence). It is no accident that structural and transformational grammars tend to be illustrated by the most simple-minded sentences, for example those featured by Chomsky: “The man hit the ball,” “the man has been reading the book,” etc. This pedagogical crutch exaggerates taxonomy at the expense of meaning, feeling, and the continuous ability (and right) of all speakers and writers to change or modify their expression in progress--and even, when needed, to settle for sentence fragments, or suddenly to make a choice (for example a new and more appropriate noun used as the subject), imposing the necessity to reroute syntactic possibilities from beginning to end. More often than not, a change in wording early in the sentence produces further changes in cascading sequence for the rest of the sentence. If an infinitive phrase is revised to become a participle phrase, the participle phrase that follows might sound better as a relative clause, and the relative clause earlier intended to end the sentence might best be revised as a par-

ticipule construction used as a terminal sentence modifier. Similarly, if a prepositional phrase is compressed into an attributive adjective, the infinitive construction that follows might be similarly reduced to a prepositional phrase, opening possibilities for an elongated relative construction ending the sentence. The need to avoid repeating the same words in adjacent contexts in which they bear a slightly different meaning must also be taken into account, as well as the need to avoid distractive sound patterns (rhyme, alliteration, doggerel effects, etc.), and to avoid nesting similar syntactic units in conspicuous fashion (e.g., “trying selling mining stocks”). As a general rule, anything syntactic that diverts one’s attention from meaning to syntax is undesirable. Not to forget the need to avoid temporary confusion because of a partial grasp of ideas, when grammar itself appropriately gives expression to uncertainty through *anacoluthon* in sentences that begin in one direction but end elsewhere. All of these considerations necessitate a reexamination of the assumption that effective grammar necessarily generates every correct sentence at the same time as it excludes every incorrect sentence. This dictum is generally useful, but not always valid, and not particularly relevant to what matters as sentences move forward through time.

Even the initial step of launching into a sentence is different from the generative paradigm emphasized by Chomsky. The subject-predicate nexus (noun plus its modifiers followed by a verb plus both its modifiers and complement) is perhaps habitual, but it does not initiate the formation of a sentence. First of all, speaker/writers must stake out their chosen topic with the noun (or nominalization) used as the subject that concerns them. “The birds in our yard,” one says, providing the subject of a sentence without exactly knowing yet what can be done with it. Through habit, he is confident that the moment or two spent in declaring this subject provide sufficient time for the rest of the sentence to come to mind. While declaring the subject he is already groping for its predicate. It is a consecutive sequence, and without the tandem subject-predicate symmetry (S + P) obliged by Chomsky’s taxonomic approach. In other words, the sentence’s essential matrix is nothing more than a “what” to be followed by an “about which.” “These absurd accusations,” says the lawyer, and the entire jury can focus their expectations on the rest of the sentence as an “about which” that exposes them to be absurd as far as the lawyer is concerned. At the moment he launches into his sentence, he might not know his exact choice of words for explaining the absurdity involved, but everybody, the lawyer included, knows that something is about to be said relevant to the accusations. Similarly, a teacher might begin with the words, “My intentions,” thus providing a much simpler subject, but already the class expects the rest of the sentence to be dominated by the teacher’s discussion of what she wants to accomplish. While saying, “my intentions,” she is trying to decide exactly what intentions to talk about and in what sequence. As a general principal, a sentence almost inevitably begins with the subject having been chosen a couple dozen milliseconds preceding the pursuit of a subject-predicate nexus. This in itself affords a behavioral habit substantially different from the innate generative paradigm essential to Chomsky’s taxonomic approach.

If a different noun or nominalization suddenly presents itself as a better way to begin a sentence, just a moment or two are needed for the needed substitutions to accommodate the change, and the speaker can be confident that later additions and deletions can be formulated to carry forward the meaning within the revised context. And of course further substitutions can be imposed at every stage in advancing the sentence toward closure. All of these and many other such possibilities instantaneously flash through our minds but then almost as quickly recede just

a few seconds after the process completes itself. The scaffolding involved in sorting through these choices likewise dissolves in its entirety once it has served its purpose, leaving the “final” version of the sentence to stand on its own. Even the simplest sentence, say, of eight words or so, depends on a swarm of decisions too reticulated for a hard and fast paradigm to be constructed relevant to the making of the sentence as a whole.

As a rule of thumb, the key words that first come to mind in the formulation of sentences are usually nouns, but not always. Verbs might take precedence (for example *catapulted* in the sentence, “They catapulted over the hedge”), and even prepositions might be emphasized, for example in the sentence, “It’s in the box, not on it.” Similarly, the adverbial construction “over there” might be emphasized, as might the subordinate conjunction *because* in the sentence fragment, “because I want you to.” In all instances, however, particular words come to mind before others do, either singly or in a cluster, and syntax usually (but not always) deploys these later words to explain and contextualize those first brought to consciousness.

Simply enough, the problem at the root of holistic syntactic models in the explanation of verbal behavior is that short-term memory limitations bear an important and inescapable impact in maximizing the importance of flexibility in sentence formation. We remember not more than a few words while in the process of constructing sentences, and our task is primarily to combine these words with each other rather than securing their terminal “fit” within the larger whole that comprises the sentence in its entirety. In other words, we think on a piecemeal basis through the construction of sentences, and the process is essentially cumulative from beginning to end for the sentence itself, but not for the speaker’s memory in having produced it. True, everything finally falls into place in the final product, but there are so many choices in combining words and phrases toward this achievement that it would be a mistake to treat the final product as the ultimate desideratum in making each of these choices. Rather, closure always remains a possibility while local choices are in the process of being sequenced, so when enough of these choices have been brought into play to clarify the basic idea at the root of the sentence, there is no problem in bringing everything to a close. This necessity imposed by the short-term memory might be considered a weakness, but it also provides grammar with sufficient freedom to accommodate the expression of one’s ideas no less susceptible to variation.

Only once in my own experience, during a severe gout attack while lecturing in front of a large class, was I myself able to formulate fully coherent syntactic constructions in full consciousness as many as twenty words beyond the present moment. I recall having been a good deal more articulate than usual, with an enlarged span of verbal sufficiency relevant to both what I had already said and what I intended to say. Everything fell into an elegant sequence as if I were a genius, which I’m not. When the class ended, I waited for the lecture hall to empty before I hobbled from the building to my car and drove home with my gout foot on the accelerator. In retrospect, the principal benefit of this amazing temporary breakthrough was my sudden exposure to the verbal sufficiency of the lucky few who can stretch their short-term memory to this extent. For most of us, however, there is usually a far more limited zone of active verbal decision-making, and this necessitates a reliance on localized habits (call them “rules” if you please) in the production of syntactic structures some of which far exceed the limitations enforced by the short-term memory. Amazingly, we engage in the generation of longer sentences by proceeding on a piecemeal basis, arranging a few words at a time from beginning to end, confident that the

sentence can be brought to an acceptable conclusion. A high level of syntactic flexibility is thus guaranteed by an almost universal susceptibility to short-term memory limitations in producing sentences, offset by a much more inclusive long-term memory capacity in the retrieval of words and structural conventions needed for this purpose. The auxiliary benefit of this disparity is that it paradoxically lets one think while speaking, and, vice versa, speak while thinking. Language actually becomes a vehicle of thought, not simply its linear replication in correct sentences. Ideas generate words, but with plenty of room enforced by short-term memory limitations for words to suggest further ideas. With healthy syntactic versatility this interplay expands human intelligence to levels not otherwise possible.

4.

To paraphrase Jonathan Swift's definition of good style as the right word in the right place, all style, both good and bad, depends on the retrieval of particular words from the memory to be combined with others in syntactic patterns also retrieved from the memory. Words call up other words, and in doing so they draw upon the most appropriate grammatical structures for contextualizing their relationship; vice versa, grammatical choices oblige finding new words to complete their contextualization, thus imposing a comparable pursuit of appropriate words and word combinations. So choices occur in both directions until the string of words in combination finally attains closure. If anything, grammar is even more effective on the axis of combination than the vocabulary it combines as the sentence advances. The actual use of grammar comprises all habits that are brought to bear, both the product of memory (vertical) and the agent of combination (horizontal) as explained by Saussure's paradigm. In fact, both vocabulary and grammar are vertical in the sense that they can be retrieved relevant to the ideas one wants to communicate, yet horizontal in the sense that meaning is dependent on their interaction in the linear advancement of sentences.

That sentences generate or project themselves in forward progress suggests looking down the barrel of a gun. Better yet, the forward progress of sentences is like driving along a stretch of Nebraska highway, with potential words and word combinations looming up like fields, barns, and billboards, all of which surge into view only to flash by and disappear behind oneself as the sentence continues advancing into the future. Possibilities incessantly present themselves, but then recede from one's memory, forgotten almost as quickly after they have been processed toward the completion of the sentence. One's awareness of the origin and departure of particular words in context is unidimensional on the axis of time in the sense that verbal experience gains specification as it continuously surges into view from its forward vanishing point (future possibilities just out of sight on the horizon line in front of the car) followed by a residue of verbal manifestation that almost as quickly gets sucked into a retrospective vanishing point-- what we soon forget having said word for word--little more than a zone of blurred confluence as to be seen from the car's rear window.

The difference between making sentences and highway driving is that words and phrases may be segmented, each of them performing a fivefold role at the moment of expression: (1) most basically through transpiring in order to express one's intended meaning; (2) through inserting themselves without violating the sentential context already in progress; (3) through meeting expectations already set in motion on a feedback basis (e.g., when a plural verb confirms the

previous use of its plural subject); (4) through either predetermining or helping to predetermine later choices by means of feed-forward expectations (vice versa, when a plural subject necessitates a plural verb); and (5) through postponing the fulfillment of earlier expectations on a feed-forward basis, for example when a prepositional phrase interrupts the relationship between a relative clause and the noun it modifies without being directly involved in this relationship. This fifth function is perhaps the most obvious with words, phrases, and clauses that may be eliminated from a sentence without impairing the connection between the words they otherwise separate. This fivefold principle, I would argue, can be extended to apply on a universal basis relevant to all words, phrases and clauses. At every level in sentence formation, all syntactic components abide by this fivefold function of transpiring, augmenting, fulfilling, necessitating, and at times deferring. The obvious exceptions to this rule are the original and final words of sentences, in the first instance without augmenting, fulfilling or deferring and in the second without necessitating or deferring. Again, the list:

- Transpiring in the sense that the word happens.
- Augmenting in the sense that the word may be added without violating the sequence of words already in motion.
- Fulfilling in the sense that previous words have called for its inclusion.
- Necessitating in the sense that it either imposes or helps to confirm similar demands for later words or word combinations.
- Deferring in the sense that it interrupts the fulfillment of earlier demands without otherwise affecting the relationship.

This fifth function, of deferring, is of crucial importance in helping to avoid the sequential limitations of the Markov process rejected by Chomsky as a limitation of behavioral linguistics: “Each state through which [the speaker] passes represents the grammatical restrictions that limit the choice of the next word at this point in the utterance.”⁶ This constraint is indeed problematic. However, once syntactic units may be skipped in the relationship between other units, the limitations of syntagmatic immediacy imposed by the Markov process become irrelevant. That is to say, the Markov process ceases to be a barrier to adequate syntax if and when any relationship between units may be held in abeyance while essentially parenthetical information is interspersed. If and when all five of these principles are met (the last of them when applicable), each expressed word is grammatically valid and the sentence continues to advance in a manner that can be described as correct. If and when one of these principles is somehow violated, the sentence falls short of this description. At this point solecism occurs or the sentence becomes garbled.

By itself, any word has a broad lexicon of syntactic and referential operations it can potentially fulfill, but its sentential context substantially reduces this choice through the particular demands posed by surrounding words and word combinations--the cumulative backlog of obligations to be fulfilled. One enjoys enormous liberties at the inception of a sentence, but each additional word and word combination necessarily restricts possibilities at the same time as it triggers further word combinations that compound this process of augmentation until closure is imposed

signified by terminal punctuation. This is when it becomes necessary to gather one's ideas before beginning anew toward another and more advanced plateau of ideas and feelings in the next sentence. As a sentence moves forward, one's freedom of grammatical choice steadily diminishes resulting from an accumulation of feedback obligations, all of which must sooner or later be fulfilled. New freedom occurs with each word or word combination that settles earlier debts, but new obligations are simultaneously imposed, and each and every sentence can only be brought to a close upon the fulfillment of everything promised, though of course termination almost always remains optional, since additional sentence modifiers can be back-loaded to help clarify earlier portions of the sentence.

In thinking the formation of sentences, then, one usually advances from a tentative assortment of words considered important--probably not more than a half dozen--and others automatically fall into place to secure their connection (such relatively abstract "function" words as prepositions, conjunctions, articles, etc.) based on a habitual sense of placement that links them all on a meaningful basis. Also operative is the sense of how and when to terminate the sentence and how and when relatively tangential considerations might be taken into account in appositive and parenthetical constructions. As already indicated, the same occurs both when speaking and writing sentences, though copyediting permits an artificial and potentially endless pursuit of variations, always with the purpose of getting constructions exactly "right" in seemingly effortless forward motion. In all instances, what occurs--or should seem to occur--is a steady advancement of interactive word combinations that push conscious expression forward both within and between sentences. A sustained foreground of words and word combinations can accordingly be generated by a complex interplay of feedback and feed-forward operations that lets us proceed with out ideas.

Particular sentences might be totally unique, and in fact they often are. However, everything about them, the entire verbal paraphernalia put to use, is recognizable based on previous experience--all the words, phrases, and sentences tagged by habits that dictate their choice as well as the positions they are given and the space they are allotted. Recognizable shared habits predominate, since language normalizes discourse to the extent that we use the same words and syntactic devices as everybody with whom we communicate. However, individual habits are also important, since our use of language particularizes our verbal behavior based on our unique predilections--the words, phrases, and syntactic *bricolage* we depend on in our use of the language. Whatever their variety, our sentences draw upon a relatively limited assortment of syntactic choices we have individually learned to depend upon in expressing our ideas and feelings. Our grammar might be less personalized than our vocabulary, but the difference is a matter of degree. And we become all the more predictable, the more limited our available assortment of verbal habits, probably (but not necessarily) the outcome of limited thinking. Too often habit reflects chronic simple-mindedness rooted in ignorance. Says one's loyal helpmeet of forty years, "Rob don't say much, but he shore knows the difference between right'n wrong." You bet. In such instances expressive inadequacy exposes conscious inadequacy at levels that make ignorance a matter of course, for example regarding issues of ethics.

5.

Is, then, a portable one-dimensional grammar possible based exclusively on verbal habits at every level of complexity? Can such a grammar be sufficiently flexible to account for everything that happens as language advances upon itself into new meaning expressed by a new choice of words? I think so, but an entirely different taxonomy is required. To be operative relevant to language as process, such a grammar would provide each word a full lexicon of potential grammatical operations by which it can be linked with others. In the most inclusive sense such a task might seem insurmountable. Hypothetically, for example, every noun used as the object of the preposition *in* throughout the lifetime of an individual would augment this individual's grammar lexicon to that extent, a seemingly impossible quantity to submit to full analysis. However, the actual usage of an individual drastically reduces possibilities in both speech and written expression, as may be seen, for example, in Shakespeare's plays, which possessed a vocabulary something on the order of 25,000 words. True, Shakespeare's concordances exclude the word *in*, but its inclusion remains at least a possibility.⁷ Moreover, various categories present themselves for the use of *in*, and soon enough the task of summarizing its grammatical relationships with other words can be reduced to something less than the seven pages of definitions for *in* to be found in *The Oxford English Dictionary*. It seems reasonable to suggest that a healthy percentage of Oxford's defined *in*'s probably do not occur in Shakespeare's plays. For many individuals, whose active vocabulary is something between two and four thousand words, just a couple dozen definitions would probably suffice.

In all grammars, both simple and complex, each word can be similarly demonstrated to possess a syntactic "lexicon" that consists of its habitual relationship with other words in its proximity. Additional to its meaning, each word also possesses an assortment of potential syntactic relationships, and, inversely, each such relationship can bring into play a relatively limited lexicon of words, for example in the categories of adjective and preposition. Relatively speaking, a broad variety of such word and word-connection habits improves one's articulate skills, and necessarily with feedback between ideas and their expression. On the other hand, a deficient lexicon of words and syntactic functions unavoidably constricts verbal adequacy. It goes both ways: a heavy dependence on language expands the variant use of definitions; vice versa, the knowledge of language expands one's facility in expressing oneself. Nevertheless, the same principles apply at all levels. In the phrase, "the little old man," the adjective *old* is granted its opportunity to be included by the article *the* and adjective *little* preceding it, but in performing this task it augments the expectation of a noun, in this case *man*, to complete the word combination. Then again, *old* may be seen to play a transitional role in permitting earlier expectations set by *the* to be later fulfilled by *man*. When these four words are combined in this sequence, forward motion occurs along a single dimension, a syntactic trajectory that carries out the process of situating, then abandoning each word for the next, thereby setting the stage for further developments later in the sentence--unless of course *man* is meant to provide closure, for example with the brief sentence, "We see the little old man."

The close interdependence between the meaning of a word or group of words based on this lexicon is particularly evident in the limited verbal capabilities of young children, victims of senility, and victims of advanced alcoholism and drug abuse. This may be observed, for example, when there is an uncommonly high probability that the word *well* is followed by *whatever*,

or with the word combinations, *this doesn't mean by a damn thing, or be that by as it may*. In the final instance the elegant subjunctive *be* is used though it might otherwise be almost entirely missing from the speech habits of the individual. A neighbor of mine whose husband suffered a severe stroke once complained that all he could say afterwards were the two sentence fragments, "Don't know" and "Don't care." A simple choice between knowledge and concern was thus indicated by the verbs *know* and *care*, but with different meaning expressed based on habitual usage, quite aside from the likelihood that both meanings were probably implicit at all times, whatever their use for any particular occasion.

Final words preceding death effectively demonstrate the residual impact of grammar even under the most trying circumstances. This is illustrated by Thoreau's tantalizing final two words, "moose Indian," which in grammatical complexity fell well short of both Emerson's final words, "Oh that beautiful boy" and Whitman's even more syntactically complete request to his friend Horace Traubel, "Roll me over, Horace, I need to shit."⁸ The effect of simple juxtaposition--sheer syntagm, as it were--is exemplified by Thoreau's two nouns, both of which seem to have been in response to vivid memories when he had visited Maine five years earlier. For Thoreau the words were linked to experience sufficiently heightened to dominate his final thoughts. More coherent was Emerson's phrase, probably referring to his beloved son Waldo, who had died four decades earlier at the age of five. Here the interjection *oh* announces the following phrase as the description of an extraordinary memory, and the addition of this single word accordingly imposes a level of syntactic complexity in excess of the phrase already treated, "the little old man." At a semantic level it also exceeds "the little old man" phrase by indicating Emerson's response additional to the image that produced it. And even more sufficient for the purposes of comparison was Whitman's pragmatic request in a relatively uninspired compound sentence to assert immediate physical needs, with urgency emphasized through the absence of a subordinating conjunction to link the two clauses.

In Emerson's four-word utterance, the exclamation *Oh* expresses wonder, followed by *that*, a demonstrative pronoun which promises an objective specification to justify this response while permitting the insertion of *beautiful* to specify the kind of wonder before the addition of its noun referent *boy* to indicate Emerson's son. Also noticeable is the alliterative oxymoronic combination of *beautiful* and *boy*, suggestive of gender confusion relevant to his son's memory. That this literary effect would be possible at this moment just preceding Emerson's death suggests that he had used the combination before, perhaps many times. Whatever the implications, this brief exclamatory utterance heightens the sense of felt experience far more than would be possible with the single word *boy*, as would be illustrated by expanding Thoreau's words into an equivalent exclamation, "Oh that beautiful moose," or "Oh that beautiful Indian." For Emerson, his final visual recollection of his son became an epiphany expressive of his sustained grief as a father, whereas Thoreau lacked both the energy and sense of declaring himself to any kind of an audience, even himself. Indian and moose were nothing more than a conjunction of fleeting impressions in his final moments before death.

Two main clauses predominate in Whitman's final eight words, the second having an infinitive direct object to explain the request imbedded in the first clause. The subordinate conjunction *because* was implied to keep the request as simple as possible, thus reducing what was implicitly a complex sentence to its compound equivalent. Cause and effect no longer mattered--

just the need to be turned over in order to defecate. In light of syntactic demands, the final infinitive construction *to shit* could easily have been converted to the slightly more genteel *to take a shit*. The latter would have converted the word from an infinitive used as the object of the word *need* to inferior status as the object an abstract infinitive, *to take*, thus emphasizing the total act rather than its product, thereby somewhat downgrading the referent with the description of its expulsion. However, Whitman was dying, and verbal nicety was not his paramount concern at the time. Appropriately, the infinitive was permitted to say it all.

The initial clause, “Roll me over,” is also interesting, suggesting an easily overlooked rule of grammar. In this instance a slight inversion, “roll over me,” contains exactly the same words, but with an entirely different meaning. With a simple switch in position, *over* becomes a preposition instead of an adverb, and *me* converts from a direct object to the object of a prepositional phrase that modifies the verb, obviously disclosing deep structure variations in the sentence as explained by Chomsky. The same happens with “run it through,” but not with “turn me in,” “hold it up,” or “put it on,” all of which retain the same meaning but cease to be idiomatic when reversed in the same manner. A general principle thus seems relevant, that prepositions cannot be switched to become adverbs in such locutions with full idiomatic acceptability unless an entirely different meaning is conveyed. Whatever difficulties this crux might pose for Chomsky’s generational grammar, there would be no problem for the more flexible grammar I am proposing, since it is based on habit and accepts syntactic difference at this level simply as a matter of usage. “Roll me over” says what it says, and analytic sufficiency is irrelevant to its intended meaning at the time it was spoken. Habit provides a better explanation, and of course habit is susceptible to statistics.

In any case, it is impossible to confirm the exact circumstances when these three major American authors uttered their final words, but one would assume, based on syntactic adequacy, that Thoreau was closest to the moment of death, Emerson next, and Whitman third, apparently succumbing as the result of the effort to roll him over. None of them seemed aware that he was dying when he spoke, but only Whitman seems to have been capable of surprise at the time.

Constructing longer sentences is complicated by the task of formulating them as complete wholes despite the limitations of the short-term memory. This problem is both simplified and complicated by the compound use of subordination, which accommodates remarkable levels of complexity before a sentence is brought to its close. One does not need a full grasp of possibilities while advancing from one imbedded phrase or clause to the next, just the sense that everything said continues to be acceptable relative to everything that remains to be said. As earlier indicated, phrases and clauses, like single words, simultaneously transpire, augment, fulfill, necessitate and defer as they accumulate, and with the fourth of these capacities enlarged proportional to the level of complexity. If anything, phrases and clauses may be deployed with even more facility than single words. The complex use of grammar that results from this freedom can be illustrated by the following 37-word sentence:

I know that spending money to feel better results in misery if one’s ability to buy whatever one pleases declines to a level that can no longer be satisfying in this fashion, poverty the outcome of foolish extravagance.

However awkward, this sentence is grammatically correct, and its flow of words is more or less idiomatic. Altogether, five clauses are included with both a subject and predicate. These include a main clause and two noun clauses, the first used as the object of *know* (“that spending money,” etc.) and the second as the object of *buy* (“whatever one pleases”), with its head word *whatever* used as the direct object of the verb *pleases*. Also included are an adverb clause modifying the verb *results* (“if one’s ability,” etc.), and a relative clause modifying the noun *level* (“that can no longer,” etc.). Two infinitive phrases also play a role, the first as an adverbial modifier (“to feel, etc.”) and the second as an adjectival modifier (“to buy,” etc.). Three prepositional phrases are also included (“in misery,” “to a level,” and “in this fashion”). And finally there are two participle constructions, first a gerund phrase “spending money,” used as the subject of the first noun clause, and finally the sentence modifier at the very end, an absolute construction with the participle *being* implied in the phrase “poverty [being] the outcome of foolish extravagance.” For some, this concluding phrase might seem redundant; for others it is the sentence’s only excuse.

Amazingly, phrases and clauses pile up almost without notice in this particular sentence, especially at the beginning, when the main clause (“I know,” etc.) introduces a noun clause as its direct object with the conjunction *that*, which thereupon introduces a gerund phrase beginning with the participle *spending*, then an infinitive phrase as an adverbial modifier. Too much happens in too little space for the sentence to have been generated with all sequential operations imbedded on a transformational basis. Undoubtedly the necessary rules can be invoked to generate and then combine the multiply imbedded elements on a retrospective basis, but such a task totally exceeds what actually happens when the sentence is told. On the other hand, a more flexible grammar emphasizes the cumulative production of sentences, explaining with relative ease the grammatical variants that can be imposed to say almost the same thing, but in different word combinations. For example, at the most simple level the sentence can be divided to clarify its meaning by expanding its vocabulary:

I know that spending money to feel better often results in misery. This is especially true if one’s ability to buy whatever one pleases . . . etc.

Here sentence parturition between *misery* and *if* is confirmed by the addition of the adverb *especially*, thus simplifying the construction without otherwise necessitating any changes. But even more basic revisions are equally accessible as the sentence is being formulated, for example in the variant--

We are all aware that spending money to feel better becomes counterproductive when nothing is left to spend. Too often this kind of satisfaction is temporary at best, once again demonstrating that foolish extravagance brings on poverty.

Here a good deal of paraphrasing occurs, with the word *counterproductive* added as well as the constructions “this kind of satisfaction” and “that foolish extravagance brings on poverty.” This seems an entirely different variant of the original sentence, but with just a moment or two of forethought the substitution would be possible without much difficulty. I myself can imagine myself sharing the first sentence with my wife, the third with an audience.

But other changes become possible, for example in shifting any particular noun or nominalization is brought to the introductory position in order to emphasize its relative importance:

Misery too often results from spending money to feel better to the extent that there is nothing left to spend. . . . etc.

Just one displacement of this sort can be expected to produce cascading grammatical modifications from beginning to end, the sentence having been completely revised in order to say just about the same thing. But this domino effect is perhaps best illustrated by front-loading the final absolute construction, giving it dominant position as the main clause:

Foolish extravagance brings both poverty and misery whenever spending money to feel better finally depletes one's ability to be satisfied in this fashion.

Here Samuel Johnsonian certitude prevails. "Foolish extravagance" becomes the dominant issue, plain and simple, and changes in subordination cascade to produce further changes with such facility that the sentence length has been halved without difficulty, contrary to Johnson's reputation for Ciceronian extravagance.

6.

It is not necessary here to explore all the ramifications of the grammar I am proposing. My object is only to show how grammatical operations express and organize consciousness based on habit, an experiential source of structure and usage that can be stretched to the limit in local verbal contexts without being elevated to taxonomic status as an innate capacity. In answer to the question to what extent a more flexible grammar need be elaborated in its own terms, the answer, fortunately, is not much, since most of the groundwork has already been completed by earlier grammars inclusive of traditional, structural, and transformational approaches, all of which are useful to the task. The obvious problem with structural and especially transformational grammars, however, is that syntactic possibilities are so vulnerable to whim resulting in further modifications when the sentence occurs that quantifiable analysis necessarily excludes much of what happens during the actual generation of sentences. It seems impossible to base analysis on the inchoate free-flowing dynamics of selectivity that take place, so the decision seems appropriate to limit analysis to the finally achieved sentence. In fact, this assumption seems quite reasonable, since discarded variants obviously cannot be ascertained with certainty, and each word, phrase, or clause finally accepted would need to be linked with all the changes obliged by its adoption. Where would one stop? How so much more appropriate it seems, therefore, to restrict the analysis of sentences to their final wording.

However, there is an entirely different mode of analysis available--namely statistics--that can be used to quantify syntactic choices in the active formation of sentences. Statistical procedures can be refined for this purpose well enough that the choices among textual variants can be quantified based on their frequency of adoption for both individuals and groups as a whole arbitrarily established for the purposes of comparison. For example, it might actually be significant that an author uses the preposition *in* more frequently than *of* or *for* when combining abstract nouns, accordingly predetermining later choices in the sentences. Probably not, but who can

tell? Hence the importance of statistics. For if grammar is nothing more than verbal behavior rooted in habit, as seems to be the case, it is no less susceptible to statistical analysis than any other kind of behavior. Whatever one's innate predisposition compels, as emphasized by Chomsky, the memory and selection of words manifests itself as habit--as do walking, eating, sleeping, and everything else one thinks or does. This seems obvious enough, but early advances in traditional and structural grammars were utterly devoid of statistical analysis, and from the very beginning of his career Chomsky rejected its application, for example with his early remark, "Probabilistic models give no particular insight into some of the basic problems of syntactic structure."⁹ How incredibly wrong! Some more recent linguistic studies have used statistics, but limited to issues of verbal acquisition rather than the mature formation of sentences by native speakers. Nevertheless, as already indicated, statistics is appropriately the primary instrument of inquiry for virtually all behavioral sciences, and it is with statistics, I would argue, that the future of grammar is to be found.

At this stage the application of statistics to the study of grammar is actually quite simple, and it may be pursued by anybody with a grasp of the most rudimentary principles of the discipline. All that is needed is a full tabulation of sentences in order to sort out all the constructions one wishes to take into account--as compared to a base total of words or sentences from the passage as a whole. For example, the overall total of prepositional phrases may be tabulated, and, with more specificity, this analysis may be extended to the total number of prepositions that fit a certain description, for example those used as adjectival or adverbial modifiers, or those beginning a sentence, or those beginning with favorite prepositions, or those whose object is another phrase or clause ("*with* driving cars"). For purposes of comparison, it is necessary to divide the number of instances counted by the total number of words or sentences in the passage. Once this ratio has been calculated, basic comparisons become possible on a percentage basis among particular texts, authors, and groups of authors. This is when statistics becomes possible, providing a kind of syntactic profile (like a finger print or voice profile) that can be used for identifying authorship or for serving as a diagnostic tool that might help composition students to refine their syntactic habits toward the improvement of their prose. For example, the aspiring poet who incessantly depends on the use of participle phrases can be alerted to the tendency and encouraged to shift as much as seems needed to alternative constructions.

The exact sequence involved in taking this approach may be described here in slightly more detail:

1. A preliminary tabulation of words and/or sentences is needed for the passage (or text as a whole) that has been chosen for examination. The exact number need not be arbitrary, but the bigger the count, the more reliable the statistical results. For a longer text, prose samples may be used from different contexts of, say, a thousand words apiece every fifty or hundred pages. On the other hand, there would be no trouble including a text in its entirety with student writing in the range of from three to five hundred words long.
2. Next follows a tabulation of all syntactic units of authors one chooses to examine in passages from which a total word count has been made. Here parsing sentences becomes a burdensome necessity. Any kind of computerization would be helpful in selecting many, if not all, of the grammatical units, but in the end--at least nowadays--a hand count cannot be totally

avoided. Single words identified as nouns, verbs, etc., can be counted to determine their relative usage, but words can also be counted to determine the number of phrases and clauses, for example prepositions used to introduce prepositional phrases, participles to introduce participle phrases, etc. In the case of relative pronouns and subordinate conjunctions, the clauses that through elision exclude the subordinating word must also be included in the count (e.g., *which* in “a life [which] he wants” and *that* in “I know [that] they do”). More exotic possibilities to be taken into account would include parallel constructions, elongated appositives, absolute constructions, parenthetical elements, sentence inversions, passive constructions, complex tense sequences, etc. It might also be useful to determine the average length of phrases, clauses, and sentences as a whole. The most salient indicator is average sentence length, as well as the average length of so-called T-units, each of which includes a main clause and all of its modifiers. This relatively simple refinement prevents empty compound sentences (“And I said, and she said . . .,” etc.) from distorting sentence-length averages, as often occurs when analysis is limited to the use of sentences in their entirety. Also significant is the total length of sentence modifiers preceding the simple subjects of sentences, and, more inclusively, the total length of the “subject zone” preceding the predicate. Differences in length between adjacent sentences can be used to measure sentence variety, and, for the purposes of comparison, polysyllabic words can be counted, as well as infrequently used words, for example those included in Thorndyke and Lorge’s *The Teacher’s Word Book of 30,000 Words* (Columbia, 1944). In sum total, anything that can be counted is potentially useful.

3. Next, simply enough, it is necessary to divide the tabulation of parsed words and groups of words by the total number of words and/or sentences in the passage(s) already tabulated. Everything measured according to step 2 would be divided by the total number of words or sentences according to step 1. That proportions obtained in this fashion are emphasized rather than the absolute tallies first obtained is of crucial importance to further analysis based on group comparisons. That 16 attributive adjectives are used, for example, is far less useful than the ratio that discloses this to amount to 3 percent of the total passages. Once a basic ratio has been established, further ratios may be calculated, and this is when meaningful comparisons become possible.
4. At last ratios and averages can be calculated in order to establish comparisons based on relative usage. In many instances simple tabulations are sufficient, but for the most part averages and ratios are necessary, for example by comparing the frequency of parts of speech as well as phrases and clauses.
5. All the information gathered on this basis, as explained in the previous four items, can finally be evaluated based on comparisons at an entirely new level. This is because comparisons of comparisons can be made gathered from prose samples of other individuals within a predetermined control group--the greater the number of subjects included in this group the better. The control group might consist of different prose samples by the same author, or by individuals the same age, or at the same grade level, or of the same gender, or with comparable verbal IQ, or with substantial success as published authors, etc. It is also possible to use comparisons between separate groups for example undergraduate and graduate students, or historians and English professors, or academic and popular journals. The sample need be

only large enough to obtain a statistically meaningful average (or mean) for determining the standard deviation (or SD) that is needed to indicate the average difference of all scores from the mean for the group as a whole. Once this is done, the individual's relative performance can be calculated as a z-score based on the SD ratio. Individual reliance on particular syntactic units can accordingly be determined with substantial accuracy by using percentiles obtained from SD scores: for example that one writer is in the 78th percentile for emphasis on prepositional phrases compared to all other phrases and clauses, as compared to another who is in the 54th percentile, etc.

6. A syntactic profile could also be devised to clarify the idiosyncratic features of any particular writer's style based on either raw percentages or percentiles, with the latter providing a more decipherable indication of syntactic tendencies. Crucial to the effectiveness of such a profile in teaching grammar would be a visual graph which features not more than a dozen measurements that seem the most important. Obvious categories may be used (for example sentence length, prepositional phrases, etc.), but a more concentrated assortment may be featured relevant to the needs of particular individuals. Such profiles are commonplace in psychometrics, and they can be devised relevant to grammar once verifiable statistical data becomes available.

A zero-sum assumption relevant to this entire approach would be that the exaggerated emphasis of any one or more grammatical categories is necessarily going to be at the expense of others. One subject, for example, might depend on brief sentences with modifiers mostly limited to short prepositional phrases and relative clauses, while another features a more ambitious grammatical apparatus, but with certain possibilities exercised much more than others. For each of us, then, a kind of zero-sum grammatical syndrome could emerge that differentiates our prose from that of everybody else, but that also gives us ample latitude to improve our performance relative to group averages considered important. We become much more aware of our habits, and this provides a first step in changing those we want to eliminate.

It must be emphasized as an important caveat that variations within prose samples of particular authors can often be expected to exceed variations between authors, so it is risky to jump to conclusions too soon, and it is meaningless to calculate numbers to the final decimal point. Only the most dramatic contrasts should be taken into account for the relatively small samples used. Nevertheless, debilitating habits quickly become evident, and it is easier to rectify them once they are confronted. Statistics can accordingly be harnessed for this purpose, and one hopes with genuine benefits for teaching English at every level.

Obviously, a limited profile seems useful more often than not in the analysis of syntactic differences, since a holistic apparatus that catalogues everything conceivable would be both cumbersome and too frequently redundant with scales that inevitably duplicate the results of other scales. Fifty scales might be employed, but many fewer might turn out to be quite sufficient for most purposes, for example with a "snapshot" profile of syntactic adequacy that features not more than a dozen scales. These would probably include the categories: (1) sentence length; (2) T-unit length; and (3) subject-zone length--as well as frequency counts for (4) prepositional phrases; (5) participle phrases; (6) relative clauses; (7) noun clauses; (8) adjective phrases; and (9) appositive constructions. Additional scales would include, (10) sentence variety

(the average difference in length between adjacent sentences), and (11) for the purposes of comparison, polysyllabic vocabulary (for example the frequency of words having four syllables or more) proportional to total vocabulary. Additional scales might be devised that compare items already measured in other categories, for example (12) the ratio between prepositional phrases and all other phrases and clauses. At this point, any list I suggest here can only be tentative, since, as already suggested, substantial research would be needed to eliminate scales that merely replicate differences already established.

In calculating performance levels based on these categories, it is also important to emphasize that syntactic surfeit is not necessarily an indication of quality--that average scores, and even deficient scores, might be preferable to enlarged scores, as may be ascertained, for example, by comparing writing samples of professional authors to undergraduate students. Most obviously, for example, inexperienced writers can be expected to depend on *-ly* adverbs, definite articles (especially the ubiquitous *the*), singleton attributive adjectives, and basic relative clauses to such an extent that they almost totally crowd out alternative constructions. More often than not, as a result, the measure of approximation to averages of presumably superior groups would be preferable to raw excesses or deficiencies, though of course with the qualification that different sample populations used for the purposes of comparison can be expected to produce different averages. Major nineteenth century authors such as Dickens, Macaulay, Ruskin, and Mill, for example, can be expected to produce enormous averages in sentence length, far more elaborate than to be found in the prose of their late twentieth century counterparts.

And finally it is important to recognize that there are several potential applications of syntactic profiles. On one hand they can be used to research the use of any grammatical unit, for example by expanding the statistical analysis of the prepositional phrase. Its frequency count can be augmented with statistical data regarding its average length, its sentence position, its doublet and triplet combinations, its introduction of particular phrases and clauses (e.g., “*in* trying to play” and “*in* whatever you want”), and the ratio that can be established among the use of particular prepositions by different authors, for example from one century to the next. On the other hand, the experimental emphasis can be shifted from grammar itself to the diagnosis of actual verbal performance in any individual or group of individuals. On this basis, as already suggested, the detection of unique grammatical performances (or “signatures”) might become possible similar to the fingerprint or voice profile in confirming the identify of the individual speaker or author, or even groups of speakers and authors, for example fourth graders as compared to seventh graders, or sociologists as compared to English professor.

It might also be possible to measure syntactic complexity as an indication of verbal IQ and/or academic aptitude with comparable effectiveness to the vocabulary tests used on the WAIS IQ examination and in academic testing programs such as the SAT, ACT, GRE, and LSAT, used for measuring academic potential. With an adequate sampling, it might even be possible to establish a reliable correlation between syntactic complexity and vocabulary test results that is high enough to put far more emphasis on written prose samples in measuring potential academic performance. A simple essay assigned under supervision might be submitted to the statistical analysis of its grammar additional to its content and expression. Granted, judgments can already be made on a more or less intuitive basis by university admission officers relevant to ideas and style, and probably with better success than with an exclusive reliance upon syntactic

profiles. But it might be possible to obtain even better diagnostic results by combining the two, statistical profile analysis supplementary to expert analysis by admissions officers acquainted with the profiles and able to take into account their appropriate interpretation. If nothing else, unrecognized bias on the part of test scorers would be more effectively neutralized. Vacuous high-minded essays would be more effectively discounted as compared to jumbled and politically incorrect essays that just happen to be well written.

Syntactic profiles could also be useful in the classroom context. Advanced students in creative and professional writing, for example, could be taught grammar well enough to measure the syntactic performance of exactly the authors they admire the most, after which they could analyze their own performance on the same basis and make the necessary comparisons to determine how and to what extent they differ. They will actually be able to determine for themselves how and to what extent their prose approaches professional standards, but also where it falls short either through excess or deficiency. Just as levels of talent between college and professional sports become very obvious to rookies at the professional level, these students can be expected to benefit once exposed to the difference. Many will find that a 60 percentile score for particular grammatical constructions compared to the performance of other students turns out to be an obviously deficient 10 or 15 percentile score compared to the professional samples they themselves have chosen to tabulate. Ignorance of these disparities might be acceptable for the average student, but the opportunity to judge their own performance on a comparative basis might encourage substantial improvements among competitive undergraduates as well as graduate students who expect to teach composition and to publish themselves in the near future.

It may be conceded here that basic syntactic adequacy can be granted in a typical concatenation of short sentences with simple attributive adjectives, short prepositional phrases, and of course a persistently basic vocabulary devoid of both unusual and polysyllabic words. Everything would be “correct” on a normative basis, so students can expect to be rewarded with an acceptable grade for prose samples too simplistic to be of any value in their future academic and postgraduate careers. They truly have no idea why their performance doesn’t receive the high praise enjoyed by other students capable of a more adequate style. A more advanced level of under-achievement may be observed in the prose of college students that merges borderline adequacy and excessive caution, call it syntactic timidity. In this instance, students avoid written syntactic constructions they might actually risk in their conversations, because they are uncertain of their acceptance by their professors. Here is where one can expect to find an excessive reliance upon elongated relative constructions and attributive sentence modifiers counterbalanced by the total avoidance of inversions, elisions, absolute constructions, parallel constructions, elongated appositives, nouns modified by nouns, passive and subjunctive verbs, doublet and triplet prepositional phrase sequences, and of course any kind of a stretched vocabulary. With exposure to accurate quantification of their difficulties, these students can be encouraged to bring more of their thoughts and feelings into their expression with enlarged syntactic freedom. The purpose would not be to cleanse their of possible error, but to encourage syntactic risk, letting them venture into the expression of ideas and feelings they might otherwise fail to acknowledge. Once confronted with the statistics that demonstrate their timidity, they would be able to revise their performance compared to that of authors they admire. It might then be possible to devise their own exercises far more specific to their shortcomings than the useful but relatively inflexible sentence-combining exercises now emphasized in basic English classes. Suddenly these indi-

viduals would be able to argue their ideas. Bullies would no longer kick sand in their faces when they have something to say.

7.

For the purposes of illustration, I can provide here a brief “snapshot” that contrasts my syntactic profile in the first thousand words of this paper with passages of comparable length at the very beginning of three major works, by George Curme, Charles Fries, and Noam Chomsky--respectively *Syntax* (Heath, 1931), *The Structure of English* (Harcourt Brace, 1952), and *Syntactic Structures* (Mouton, 1957).¹⁰ These three books are arguably the three most important in the history of modern American grammar. Of course their importance derives from their content rather than their prose, and linguists and grammarians aren’t necessarily superior stylists. Moreover, their respective contributions to the field of grammar totally overshadow anything I have to offer. It might be considered presumptuous even to suggest such a comparison. Nevertheless, Curme, Fries, and Chomsky all write well in their respective texts, and my purpose is simply to provide the smallest possible sample population for grammatical comparisons. Who else could be added to the total without diminishing the level of achievement it represents? All three have been obsessed with grammar far more than I or anybody else. So how does mine stack up against theirs? Or, more specifically, how might its numerical values compare with theirs.

It may also be conceded that a much larger sample is needed for a fully adequate comparison, including more extensive passages both from my own prose and from that of at least a dozen additional authors. What I provide here is simply, as indicated, a snapshot to give a sense of the proportions involved. Also, without sufficient data to calculate T-scores and percentile values, I take the liberty to dramatize my results by using total sentences rather than total words as a base to determine ratios among our respective samples. Granted these limitations, the data remains useful, I think, in providing a ballpark estimate of my grammatical tendencies:

	<u>Curme</u>	<u>Fries</u>	<u>Chomsky</u>	<u>Jayne</u>
total words	1023	996	998	1002
total sentences	41	34	35	36
average sentence length	25	29	28.5	28
coordinate conjunctions/sentences	0.56	0.56	0.66	0.94
nouns/sentences	5.70	6.20	5.70	6.50
adjectives/sentences	3.30	2.60	2.50	3.30
prepositions/sentences	2.80	3.40	4.60	3.10
participles/sentences	0.22	0.18	0.40	0.47
infinitives/sentences	0.20	0.24	0.37	0.31
subordinate clauses/sentences	0.34	0.88	0.83	0.53
all other phrases, etc./prep. phrases	0.27	0.38	0.26	0.42
words/introductory modifiers	1.90	0.65	1.00	1.10

The number of prepositions, infinitives, and participles (inclusive of gerunds) is limited to those that introduce phrases beginning with these words. For the separate categories of nouns, adjec-

tives, and conjunctions (exclusively coordinate conjunctions), the average number per sentence is indicated, with the latter including those which combine words, phrases, and clauses. Subordinate clauses include the relative, adverb and noun clauses. The item “all others” in the second from last category indicates the total number of phrases and clauses except prepositional phrases divided by the total number of prepositional phrases. The final category indicates the average number of words used in introductory sentence modifiers per sentence.

At first glance these tabulations might seem empty and meaningless, but their interpretation takes on significance once the appropriate comparisons have been made. It is interesting but probably accidental, for example, that substantial uniformity can be found among the four samples in several categories, inclusive of average sentence length (between 25 and 29 words), the average number of nouns per sentence (between 5.7 and 6.5), and the average number of adjectives (between 2.5 and 3.3). For the adjective/noun ratio, Curme’s score exceeds the rest by a significant margin, as becomes evident just by reading the passage, which was obviously intended as an introductory general assessment of the issues involved. Not surprisingly, Curme also resorted to elongated appositive constructions and “runaway” parallel lists as if he felt totally at home with grammar (as in fact he was). And he featured introductory modifiers, again suggesting his effort to be essayistic. Meanwhile Fries fell short in this category, as much as anything, I would suspect, because his theory emphasized clauses rather than sentence modifiers. For prepositional phrases Chomsky’s score is the most exaggerated, combined with a heavy pronoun emphasis (not included on the chart) in his effort to maximize precision for explaining the principles of his theory at the very beginning of his text, first intended as a doctoral dissertation.

Three areas of concern may be noticed in my own prose, all of them involving excess: too many coordinate conjunctions, too many participles, and too few prepositional phrases, especially compared to other subordinate phrases and clauses in sum total. My use of coordinate conjunctions does not seem too much a problem, as may be determined once my use of conjunctions is subdivided into specific categories--those combining clauses (10), sentences (8), nouns (8), adjectives (1), phrases (3), predicates (3), and combinations such as “. . . better *but* not to such an extent that . . .”(3). The major problem is obviously with my use of conjunctions to dramatize the connection among sentences. Once these conjunctions are eliminated from the total, my percentage drops from .94 to .77, much closer to the mean for the group as a whole (all four of us). Also of potential concern, though, would be my use of coordinate conjunctions to form compound sentences, perhaps too often at the expense of complex sentences connected by subordinating conjunctions (*because, after, etc.*).

My heavy use of participles seems to be the primary source of my exaggerated score on the scale that measures the ratio between prepositional phrases and all other phrases and clauses. There is a bimodal division on this scale between the low scores of Curme and Chomsky on one hand and the high scores of Fries and myself on the other, with mine by far the highest. If participles are eliminated from this inclusive comparison, my score drops to an improved .27, compared to .25 for Chomsky, .33 for Fries, and .19 for Curme. Further investigation would probably indicate that my disproportionate use of participles is linked with terminal sentence modifiers, a habit acquired from teaching Christensen’s theory years ago.¹¹ I also probably rely excessively on elliptical absolute constructions (“She groaned, her plans [being] a total failure”) and elongated appositive constructions (“Harold, a foolish guy who . . .”). Another problem is un-

doubtedly my polysyllabic proclivity (pretentiousness, some would argue), and this too may be calculated on a numerical basis. Proportional to the total word count of my sample passage, the words of four syllables or more produce a ratio of 1.39, as compared to .85 for Fries, .80, for Curme, and .89 for Chomsky, whose score would drop to .40 if the heavily repeated word *grammatical* and its variants are excluded from the list.

What am I to think of all this? Obviously, the samples used are too small to support any final conclusions. Nevertheless, tendencies indicated here might well be confirmed by a more inclusive sample, so even now, with evidence this sparse, my task as a writer should be to recognize and somewhat curtail my stylistic excesses. I'm sufficiently old-doggish to indulge myself where I please, but I should also recognize that the tendency must now and again be reined in. My excuse, of course, is that grammar itself has become a professional hazard, as with lawyers who stretch the law, psychologists who raise unhappy children, and physicians who ignore their own health. For I worry too much about what I'm doing to do it well.

8.

Why is this kind of inquiry unthinkable today in the teaching of composition? Partly because of the difficulties in parsing sentences with any accuracy on a consistent basis. There are too many variations to be taken into account for the process to be totally automated for all verbal contexts, and the collection of hand tabulations on an adequate scale would be problematic at best now that an entire generation of Americans has escaped exposure to grammar. Few of us are left who can actually parse a sentence. Also to be recognized, however, as already indicated, is the historic factor that grammar effectively committed suicide during the sixties with a bait-and-switch shift in emphasis for many of us who taught composition at the time. The introduction to a rigorous structural linguistic approach was almost immediately supplanted by a supposedly yet more rigorous approach justified by a more inclusive use of linguistics--structural, yes, but necessarily supplemented by transformational principles. As already indicated, the mystifications of this brand-new pedagogical synthesis sped the abandonment of grammar in English classes before its statistical uses could even begin to be explored on an effective basis. Chomsky made a few disparaging remarks about statistics, and this was sufficient to put it in the freezer. Paradoxically, the only application of statistics that bore much impact at the time was an assortment of studies demonstrating that grammar taught based on the relatively primitive prescriptive methodology in effect at the time had no value in improving the verbal performance of students. So goodbye grammar (not even taught to future teachers of composition at the college level), and hello, "Hi kids, whatta we wanna write about today?"

Apropos of my personal experience with grammar, it should be mentioned that I have endured my own particular Odyssey that has been both fortunate and unfortunate. My handicap is that I am ambidextrous and predominantly right-hemispheric in my way of thinking. My primary experiential metaphor is in shapes, not words. Some kind of a paradigm must be involved, or I lose track of ideas pretty quickly. To the extent that genetics has any influence, it can be mentioned that a grandmother, an aunt, and two daughters have aspired to artistic achievement, and that I was tempted by the possibility as late as my sophomore year at college. Also, one of my daughters is partially dyslexic, and one granddaughter severely dyslexic. Since my earliest memories, I myself have frequently groped for words, forced to resort to roundabout grammati-

cal strategies in my quest for the needed vocabulary to express my meaning. In the English and social science classes I attended through high school, I suspect, it was only my outspoken class participation that compensated for the turgid essays I turned in for credit. Aggressively insightful in group discussions, I couldn't figure out why I kept receiving B's in my report cards by teachers who obviously appreciated my oral contributions. For my written college assignments, I turned in nothing less than fourth drafts, but only to receive grades for them that topped off in the high B range except for the few papers I wrote with enthusiasm.

Fortunately, my seventh grade teacher had taught two semesters of sentence diagramming, my high school Latin teacher had later exposed me to more English grammar than anybody else since the seventh grade, and a graduate English education course exposed me to Paul Roberts' approach using the basic principles of structural linguistics. An introductory linguistic course that featured Bloomfield's *Language* was also useful, sort of. Finally, my experience as a community college instructor during the early sixties familiarized me with traditional, structural, and transformational grammars at an intensive level. For two years I taught and thought little beyond grammar (additional to rhetoric, logic, and paragraph structure) applied to student writing. On occasion I stopped listening to people's ideas just to keep track of the grammar they were using. As one colleague put it, "Everybody has a religion--mine happens to be grammar." Granted, I still couldn't write well except at a basic level, but I had an increasingly accurate idea why, and the later necessity to write papers and articles regarding a large variety of issues--especially politics--finally brought my knowledge into play. As much as anything, I suppose, it was political indignation that forced me to come to grips with my problematic writing skills. However, I should add that it remains necessary to this day to revise my prose at excessive levels. I'm proud of the first draft of one *New York Times* letter I wrote that was actually published as it stood back in the early seventies, but most papers, letters, and articles went through as many as twenty or thirty drafts. For the record, I have intentionally restricted this paper to its eighth draft.

Why, then, have I done so little in promoting the grammatical approach I have just described here? Why, aside from the fact that my contribution isn't particularly marketable, haven't I written a book promoting such an approach--at least a couple of published articles when I was concerned with the issue? An unfortunate chain of events prevented this from happening until my retirement, and even now I am engaged in a variety of projects that take precedence over grammar. My 1970 Ph.D. in literary criticism diverted me from issues relevant to the grammar I had taught in community colleges. Only when I began to explore affective stylistics on an experimental basis toward the end of the seventies did it occur to me that comparable experiments could be used relevant to grammar. Unfortunately, I soon found myself in a professional nightmare, teaching at six colleges and universities within four years, the second of my new academic situations having put me in a situation abroad without a sufficient number of native speakers for use in English language experiments.

When I once again had the opportunity to teach composition courses in a stable academic environment, I began to conduct experiments relevant to grammar. I duly acquainted department officers of my project and received their blessings to proceed at both the upper division and graduate levels. However, an unusually assertive new chairman suddenly took charge. As an old-style composition teacher for many decades, he absolutely forbade any further effort on my

part. Since he had excellent connections in both the administration and faculty union (which he had first helped to establish), as well as the support of other composition teachers in the department, at least regarding this particular issue, I found it expedient to abandon my project and put more focus on other tasks which already took up a good deal of my time. Not surprisingly, the department shifted my responsibilities from advanced composition to critical theory, which had already been my principal interest.

For, indeed, it cannot be denied that my expertise lay elsewhere, and that my knowledge of statistics, linguistics, and even, for that matter, traditional grammar, had become very rusty and perhaps insufficient to warrant many of the risks I was willing to take in explaining my approach. The situation was plain: I was a dilettante and autodidactic (a dangerous combination), not an expert in grammar, so I shouldn't have take extraordinary risks in the matter. I therefore wrote a summary account of my experience--the first two pieces included in this particular unit of my website--and let it go at that. I did not bother trying to publish them, since there were no journals at the time that would have been remotely interested. Once again immersed in critical theory, where I conceded I probably belonged, I did not have time enough to return to the project when the overbearing chairman was deposed and forced into retirement just a year or two later. All my materials had been relegated to dusty filing cabinets, and that's where they stayed until my own retirement. Now, five years later, when status and academic propriety no longer matter, I can do little more than summarize my original intentions for a second time with the hope and expectation that others in the field might be stirred to resurrect their investigation. These colleagues, whoever they are, have my very best wishes. I would be delighted if their findings supersede my own--the more the better. For what I am able to say at this point is relatively superficial compared to what still needs to be explored.

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End Notes

¹ Also influential at the time were Poutsma and Kruisinga. A more recent text along relatively traditionalist lines also deserves to be mentioned, *A Comprehensive Grammar of the English Language* (Longman, 1985), by Randolph Quirk, et al.

² See the two pieces in my criticism section that explore this relationship between metaphor and metonymy, “The Metaphor-Metonymy Binarism,” and “Metaphoric Hypersignification, Metonymic Designification.”

³ Noam Chomsky, *Aspects of the Theory of Syntax* (MIT Press, 1965), p. 51. Chomsky links Humboldt’s argument to the influence of Plato and Leibniz, and quotes Humboldt’s word to describe the innate dimension of learning, *Wiederferzeugung*, as a “drawing out of what is innate in the mind.”

⁴ *Ibid*, p. 59.

⁵ See B.F. Skinner, *Verbal Behavior* (Appleton-Century, 1957); Noam Chomsky, “A Review of B.F. Skinner’s *Verbal Behavior*,” *Language* 35 (1), pp. 25-58; and Chomsky’s recantation in “Psychologist Noam Chomsky Reveals Truth about 1959 Review of Skinner’s *Verbal Behavior*,” www.baam.emich.edu.

⁶ Noam Chomsky, *Syntactic Structures* (Mouton, 1968), p. 20.

⁷ Alexander Schmidt’s *Shakespeare Lexicon and Quotation Dictionary* (Berlin, 1902--repr. by Dover, 1971) may be cited as an exception to this rule because of the seven columns it devotes to *in*, but there is no effort to be totally inclusive in its treatment of words.

⁸ My source for Whitman’s final request is actually by word of mouth. Horace Traubel, the individual who attended Whitman on his deathbed, later confided to somebody who confided with somebody else who told the critic Leslie Fiedler. Fiedler in turn shared the information with me during a casual exchange over drinks, so I did not have the opportunity to transcribe the sequence, name for name. However, I do recall Whitman’s last sentence in its entirety because its infinitive “to shit” seemed more explicit than its euphemistic nominalization as the object of an infinitive construction.

⁹ Noam Chomsky, *Syntactic*, p. 17--this quote is also featured by Mark Seidenberg, et al., in “Does Grammar Start Where Statistics Stop?” *Science*, vol. 298 (18 Oct. 2002), pp. 553-54.

¹⁰ Curme’s passage is at the beginning of his Preface, pp. v-vii; Fries’s passage is pp. 1-4 of his Introduction; and Chomsky’s is pp. 11-15 of chaps. 1-2.

¹¹ See Francis Christensen, *Notes toward a new Rhetoric* (Harper & Row, 1967).