Chapter Four

THE LEVELS OF LANGUAGE

Laypersons typically confuse the written and spoken language, assuming that the former is true language. This is a fallacy. Spoken language is both prior to and different from writing. Language is actually composed of interrelated levels, each with its own rules, but each of which leaks into the other, so to speak. Language has fuzzy borders between levels, a fact that has to be considered in all explanations for how we use it. Here we shall see the unsuspected complexity of even the simplest part of language, the sound system. The problems of defining what a word is has relevance for a great deal of research which depends upon its results by assuming that words are self-evident entities. Although we know a good deal about how words are created, a definition of what a word actually is, has proven to be elusive.


Human language is not an isomorphic system. That is, there is no one-to-one correspondence between meaning and message. A human message can equal more or less than its meaning. A speaker need overtly say only enough for a hearer to deduce the message. In addition, any meaning can be given in a variety of ways. That is, all language is paraphrasable. To illustrate, the preceding sentences can be paraphrased by

Human language is not isomorphic, lacking any necessary exact conjunction between the linguistic signals given and the meaning of those signals. This allows a plurality of paraphrases for any one meaning intended.

or

The communication system of humans is not isomorphic resulting in meanings not equalling the sum of the parts of the linguistic items actually spoken as well as paraphrasability for any particular meaning.
In the first paraphrase, lacking any necessary... means “human language lacks...” Here, we see that the message delivered is less than meaning expressed in actual words and syntax. In the second paraphrase, note that resulting actually means “the lack of isomorphism results in” and the linguistic items actually spoken means “the linguistic items that somebody actually speaks.”

It is because language is not an isomorphic system that linguists find behaviorism an insufficient model for language. One cannot explain such a system in terms of responses to stimuli. There is no way to ensure that any given utterance will result from any particular stimulus. There is no way to ensure that one paraphrase will be chosen over another, or, for that matter, is there any way to predict what new combination of words and syntax that someone can come up with to express a meaning.

[2] Language is Spoken.

This title seems like a bad pun. Of course, language is spoken, as in “French is spoken here.” The problem is that literate people assume that language is what resides on the printed page. Language does not reside on the printed page. What is on the page is only an evocation of language. Language itself is in the brain, or, if you will, in the mind.

Throughout all but the past 4000 or so years, humans have not had written language. What they needed to remember, they remembered by linguistic mnemonic devices. These, in short, comprise what we think of as poetry: rhyme, assonance, alliteration, melody, strong beat, unusual imagery. All of these can be seen to have an origin in the need for remembering, a need especially necessary for the essentially weak, defenseless creature homo sapiens is and was.

All of these devices aid memory by promoting an overabundance of connections in the brain. If one forgets a line, one can access it by recalling something that rhymed with a word in it. If one forgets one word in an alliterative string, then recalling the others helps one fill in the blank, so to speak. Beating out a rhythm or beginning to hum a tune allows one to access the words that were learned to it. This is a common occurrence when one tries to remember the words to a song which one thinks one has forgotten. As one hums it, however, the words unfold in snatches.

There are two reasons for mentioning this matter. The first is to underscore the primacy of speech. In this text, we are talking about
speech, not writing. This is not to say that schizophrenic writing is not germane. It is, and much that we say of speech is true *mutatis mutandi* of writing, and, where appropriate, may be taken as applying to the latter.

The second reason is that we do find schizophrenic deviations in the use of poetic devices such as inappropriate rhyming or what seems to be a creation of a metaphor. These can be seen as a true dysfunction in linguistic abilities. Poetry and other figurative speech are part and parcel of what it means to possess a language.


The sounds of language are not letters. Literacy causes people to think that real language is on the printed page, not in the head and certainly not in the ephemeral evanescence of sound. The reverse is actually true. Letters on a page are merely reminders of the sounds in a language. For most of human existence, there was no writing. As with technologically primitive peoples today, language resided in the head and in the waves of sound produced by speakers.

Throughout this work, when we speak of *sound*, we refer only to oral production. Even this disclaimer is not sufficient, because the orthography for English is a mess. The same sound in English can be represented by different letters. The same letters can represent different sounds. Sometimes two sounds are represented by one letter, such as the usual use of `<x>` to stand for the sounds `[ks]` or `[gz]` as in *exercise* and *example*, respectively. The opposite situation holds as well. One sound can be represented by two letters, such as the digraph `<sh>`.

Worse yet, letter-to-sound correspondences are as close to chaos as they can be and still function. For instance, the same sound occurs in each of the following words represented by the boldfaced letters: should, sugar, Cheryl, fashion, tissue, and nation. In contrast, the same letters stand for very different sounds in head, meat, great, ear, teat, and heart.


It is not merely scholarly intransigence, a pedantic insistence on details that leads me to expound on the problem of confusing language with writing. The ramifications for research can be very great. For instance, Brendan Maher's (1983) analysis of schizophrenic utterances suffers because he confounds the conventions of writing with the produc-
tion of speech. It is important to note that, in general, Maher's work stands out both in breadth and depth as careful, objective, well-reasoned, insightful, and inclusive of all relevant data. In my opinion, any explanation for the etiology of schizophrenic speech has to consider the evidence Maher has presented over the past quarter century. The experimental protocol in Maher (1983) is a very promising one. Still his basic misconceptions severely compromise his conclusions regarding schizophrenic speech. There could be no more compelling evidence of the necessity of understanding language as an entity in itself before discussing schizophrenic speech than to look at this article. It shows that nobody is immune to erroneous preconceived notions about language.

Basically, what Maher has done is what most naive literate people do. They treat the written language as if it were the only real language. In this instance, he seemed unaware that commas and other punctuation marks are an artifact of writing. Such things don't occur in speech. They are not pronounced. Yes, we've all had English teachers who have said things like, "Put the commas in where you pronounce them" in sentences like

1A. My oldest brother, who is a doctor, just won the lottery.
1B. After the ball was over, Lizzie took out her false teeth.

It is true that if we are actually reading these aloud before an audience, we may drop our voices at the commas, but in normal speech no such drop necessarily occurs. Actually, even in reading, the commas are a cue for the reader to adopt a downward intonation contour, so that such contours are an artifact of the writing system, not of speech practices. There are not any comparable commas marking all of the syntactic junctures in the sentences, even the most important.

Maher (1983) even reports a famous study by Fodor and Bever (1965) as having committed the same fallacy, although it did not. Maher undertook a modification of this study in order to investigate his long-held theory of an attentional deficit in schizophrenia (Maher 1972; Maher 1983, pp. 24-26).

Fodor and Bever developed an ingenious test in which subjects listened to sentences. At various junctures within the sentences, these researchers inserted a click. They found that subjects displaced the clicks, reporting them as having occurred at syntactic boundaries when, in fact, they had not. For instance, if a click was within in the middle of a clause, subjects reported that it as having occurred instead at the boundaries of two
constituents, such as that between the subject and predicate. For instance, in a sentence like

2. That he was happy was evident from the way he smiled.

subjects reported the click to have occurred after happy even if, in fact, it actually occurred on evident. This showed that people process language by syntactic structures, not word by word. That is, in 2, listeners grouped “That he was happy” together and then “was evident from the way he smiled.” They reported the click to have occurred at the boundary of the subject and the predicate, the major constituents of the sentence.

Maher reports the Fodor and Bever experiment erroneously, saying that a click moved to “a nearby comma or period.” Commas and periods are not in speech. They cannot be heard. Furthermore, they do not invariantly mark out syntactic structures. No comma or period can occur anywhere in 2 above, except at the end of the entire sentence. Certainly, there is no comma or other punctuation allowed at the juncture at which the click was perceived.

In fact, commas cannot be used to separate any of the major constituents of the core sentence: subjects may not be separated from their predicates, and verbs may not be separated from their complements, whether these be direct and indirect objects or predicate nominatives or adjectives. In the following, a forward (/) slash indicates the major constituent break between the subject and predicate, a backwards slash (\) indicates the break between a transitive verb and object, and an asterisk (*) separates an intransitive verb and its complement. Notice that no commas or other punctuation can be used where constituent breaks occur:

3A. The little old man over there/has become*senile.

3B. The little old man over there/broke\his leg

No matter how long we make the subject or the predicate, still no internal punctuation can occur. For instance

3C. The little old man over there whom I was telling you about the other day while we were at lunch/finally became*senile which was evidenced by his forgetting to let the cat out or the dog in all week.

3D. The little old man over there whom you met last Tuesday and thought was so wonderful/unfortunately broke\the leg which had already been injured in the Battle of the Bulge during World War II.

Another consequence of the confusion between speech and writing causes Maher (1983, p. 25) to make a corollary error, saying that “Ordinary
speech does not, of course, include explicit utterance of syntax markers.” Actually, it does. All human language relies on syntax. It is syntax that allows us to signal and comprehend the relationships between the words in a sentence and between sentences themselves. For instance, in “John loves Mary” we know that John has the emotion and Mary is its object because of the word order. This relationship can be signalled in other ways as well, as by the paraphrase, “Mary is loved by John.” In this instance, the markers of the passive (a form of the verb be followed by a verb plus the participial ending -ed) tells us that Mary is the recipient. In some languages special prefixes or suffixes on nouns indicate such relations. In Latin, for instance, if Mary is the one loved, then she would be referred to as Mariam, but if she did the loving, her name would be stated as Maria.

Any analysis of spoken or written language must rest upon syntax, and for that, punctuation is not a reliable guide. Nor is the written language. The unsuitability of orthographic conventions for analyzing syntax is well illustrated by the fragment above. During my high school years in the 1950s, the proscription against punctuating a phrase like this was so strong that we received an automatic F for writing fragments of this sort. Nowadays, this is considered a justifiable fragment. In terms of modern syntactic theory, we can say that this is justifiable because any native speaker would recognize that it represents “The written language is not a reliable guide to syntax.” By omitting the repeated material, and signalling that fact with nor, we have actually effected superior cohesion, as demonstrated in a subsequent chapter. The corollary to this proposition is that any analysis which does not recognize the syntactic origins of language production is suspect.

For instance, in the same work, Maher presents a model of speech based upon word associations. This is a shaky base for an analysis, because word associations have little to do with ordinary speech production (Chaika 1974, 1981, 1982a,c; Chapter 5,6,7). Word associations have a great deal to do with slips of the tongue, as when one substitutes refrigerator for stove or up for down, and we can show a correlations between these and some schizophrenic errors in word selection. What is deviant about much schizophrenic speech is the fact of associating. Normal speech is not produced according to word associations.

One can find passages in normal speech in which a word association seems to have produced a subsequent word. Maher provides several
examples of normals involuntarily punning in this way. For instance (1983, p. 32) he gives

4. A stable economy requires continual reinvestment in industrial plant. Tax reductions now are a case of locking the stable door after the horse has gone.

In contrast to schizophrenic associational chaining, the repetition of stable is not simply the case of uttering the word once and then having that instigate the next use of it. The second occurrence lies several words away from the first in its own separate grammatical sentence. Moreover, the second occurrence is embedded in an aphorism, and is subordinated to and increases the sense of the former.

Speech is not produced one word at a time. We have known that since Lashley (1951). Fromkin (1973) showed conclusively that we plan our utterances before producing them. Although we are not conscious of it, we select our syntactic vehicle and the words which we are going to use in advance of our saying them. In Chapter 5 we shall see that there is no sharp dividing line between syntax and semantics, but at the same time, relations between them are arbitrary. For instance, we can and do have two words which share meaning, words which might elicit each other in word association testing, but which cannot appear in the same kinds of syntactic structures. An example is the syntactic difference allowed by the verbs diminish and deplete

Our water supplies are diminishing.
We are depleting our water supplies.
Our water supplies are being depleted.
*Our water supplies are depleting.

An asterisk indicates that the sentence is not grammatical in the sense that speakers feel that it is wrong in some way involving sentence structure. The verb deplete is transitive. It must have a direct object either after it or as the subject of the passive are being depleted. Testing for associations between individual words does not truly reflect the entire language process. Except for slips of the tongue, it does not give us adequate information upon which to explain errors in speech impaired populations.
Understanding Psychotic Speech

[5] What is a Rule?

Language is not a unitary phenomenon. It is actually a set of interrelated systems, each with its own logic and each with its own rules. Salzinger et al. (1978) suggest alternative words like principles or concepts, but these do not sufficiently capture the regularity of innumerable processes in language on any of its levels. Then, too, they lend unwanted connotations, connotations which I feel would obscure the conclusions of this study.

In some quarters there is a real stigma attached to the word rule. It touches a raw nerve, especially in behavioral psychologists (Mowrer 1980). Mowrer (1980, pp. x–xi) speaks of a “strange revolution instigated by Chomsky” (boldface mine). The very word instigate shows Mowrer’s ad hominem approach to Chomsky’s argumentation, as does his speaking of Chomsky’s theorizing “as a strange revolution.” When a word becomes so loaded with far-reaching connotations that it bars reasoned argument, avoiding it is preferable. Nevertheless, it will be used in the subsequent discussion, but only because we are lacking a better term. Certainly, Chomsky’s own bitter sarcasm towards behaviorists has elicited such responses, but Chomsky’s arguments are intellectually serious. One need not concur with Chomsky to acknowledge the multitude of empirical studies which have effectively demonstrated that behaviorism is not a viable explanation of even the most ordinary language behavior.

The important thing to remember here is that this work is not an apologia for Chomsky or for his followers. It is strictly empirical, and one to which Occam’s razor has been applied. On the one hand, it is not oriented towards behaviorism in the Skinnerian sense, because that doesn’t explain the linguistic data that I have gathered or that is in the literature. On the other hand, Chomsky’s works have never explained naturalistic linguistic data, normal or not.

In this discussion, rule is used in a weak sense, referring to whatever processes we use to encode and decode words, sentences, and discourses. It also may refer to whatever it is that makes us feel that a certain utterance is wrong in the sense of “abnormal” or “deviant.” This intersects with what Chomsky called the internalized linguistic competency of native speakers of a language. In short, we are faced with the paradox that we can’t necessarily define what a rule is and what its form is, but, empirically, we know that there have to be rules. I make no claim as to the form or forms of such knowledge, either that used to create, to understand, or to “feel” that something is deviant. I am not talking about
quasimathematical rules which account for all of the grammatical sentences of the language nor am I talking about Chomsky's distinction between COMPETENCE and PERFORMANCE, which, as we have seen, is fraught with complications.

I am mindful that the very mention of the word rule or of competence versus performance in language causes scholars to derail, to get into squabbles over what is or isn't a rule, if there are rules, what is or isn't competence and whether it relates to performance. It would be too disruptive of our central concern to get caught up into such arguments, so the terms rule, competence and performance are used here only in the vaguest sense that a layperson would have of them: THE SOMETHING THAT ACCOUNTS FOR OUR LANGUAGE BEHAVIOR AND THAT CAUSES US TO EVALUATE LINGUISTIC PRODUCTIONS AS BEING PATHOLOGICALLY DEVIANT OR AS BEING NORMAL ERROR. On this even the most diehard behaviorists have to agree: that they have been attracted to the study of psychotic speech because of its weirdness which even they feel requires special interpretation. Something is distinctly wrong with that speech. If it weren't, they wouldn't be trying to explain it. The dissection of the kinds of deviance that occur in psychotic speech implicitly rests upon inner rules.

We certainly know when we hear or read sentences incorrect for our language. By this, I am not referring only to correctness in terms of politeness, such as not using double negatives in English but to sentences like

5A. I am here since six years.
5B. That dog all the time here comes.

In the absence of their being language-specific rules, there is no way to account for our judgment that such sentences are incorrect. If language is not governed by rules, how can we say that a language does or does not allow certain phrasings? How can we say that these sentences are not correct in English?

A clear example of a syntactic rule is what is often called the "dummy do" or "dosupport" rule in English. In order to make a question or negative in these tenses, one must use an empty auxiliary do. For instance,

6A. John goes every day. (present goes)
6B. Does John go every day?
6C. John does not go every day.
6D. John went every day. (preterit went)
6E. Did John go every day?
6F. John did not go every day.

The _do's_ and _did's_ here add no meaning. Their sole function is to fill the slot that an auxiliary verb would occupy if there was one in the sentence, as in

7A. Has John gone every day?
7B. John has not gone every day.

Examples such as these show clearly that language is governed by rules, many of which laypersons are not even aware of using. Language rules can be flexible, but can still be rules. J.R. Martin (1987, pp. 65-76) argues against this idea. His argument centers on the definition of the word _rule_ itself. Since he has to admit that language contains regularities which must be obeyed if one is to be understood, he says that language is governed by _conventions_ (pp. 77-82) which people abide by in order to get their messages across. These work because “the speaker wants to signal the audience and the audience wants to be signaled” (p. 82).

Surely, this is not necessarily the case. People do talk to themselves for a variety of reasons, and when they do, they don't usually utter gibberish or deformed sentences. Those who do are considered to have a pathological condition. Then, too, in social situations, how often does one find oneself listening without really wanting to? Or even speaking when one wishes not to? In lexicon, sound system, sentence patterns, and discourses, certain words and structures must be used, others may be, and yet others cannot be used at all. For instance, Kreckel (1981, p. 204) found that, in assigning stress in a sentence, there is enough agreement between speakers to show that “...there exist phonological regularities which are part of the linguistic knowledge of naive, native speakers,” but, within those rules, “...the speaker has more than one option...” in stress placement, according to the pragmatic function or for “...distributing semantic weight.”

Native speakers of a language know ill-formed sentences when they meet them. They can tell if a speaker has made a mistake in the structure of a sentence or, even, a discourse. _Mistake_, here, does not mean “solecism,” but the sort of error which is made in speech pathologies like aphasia or schizophrenia. The following errors in applying _do-support_ were made by an aphasic and a schizophrenic, respectively:

8A. [aphasic patient] I know you’re talking, but I not talking you
like I can talk you 'bout. (Buckingham, Whitaker, and Whitaker, 1979, p. 344)

8B. I still not have the thought pattern. . . . (courtesy of Dr. Bonnie Spring)

Notice that both of these violate the do-support rule seen in section 6 above. Laypersons, even illiterate ones, readily apprehend slips of the tongue, errors made by foreign speakers and children. All such recognition rest upon a rule-governed basis in language production. People also readily discriminate between well-formed and deviant discourse. Everyday terms for evaluating discourse, such as saying it is rambling, incoherent, or irrational presume violation of rules for making sentences cohere into a discourse (Chapter 6).

As early as the 1920s, The Prague School linguists presented by Vachek (1964) examined the mutual dependence of semantics and syntax as well as correlations between phonology and the other levels of language, and, as a result, realized that discourse requirements determined the grammar of the individual sentence. In effect, they showed that the discourse itself has a grammar (Chapters 7 and 11).


It is never the case that only one rule can be chosen to deliver a given message. The meaning of any given utterance usually cannot be shown to inhere only in the actual syntactic rules of its sentences, even when we try to combine those with the meanings of the words used. Rules exist at all the levels of language, including the discourse level, but comprehension also depends heavily on the interaction between syntactic and lexical choice, the discourse itself and nonlinguistic strategies. These can be isolated and can be shown to be orderly. In essence, cospeakers both rely upon and control strategies along with linguistic rules in order to convey or yield meaning.

Speaking only of nondeviant, normal speech, Sanders (1987, p. 26) explains that speech production is INTELLIGENT ACTIVITY. By this he means that there are elements which one can fashion in different ways to achieve one's goal. There are always alternatives. Also, there is no guarantee that one will get the results one wants by any given organization of such elements although there are connections between what one wants, what one has chosen, and the result one gets. Therefore, despite the lack
of a sure result, one can calculate the possibilities of what can happen. Sanders includes one other characteristic of intelligent action: there are elements which must be arranged according to constraints.

He avoids calling these constraints "rules," possibly to avoid a possible linkage with Chomsky’s insistence on the rule-governed nature of language, an insistence which limited the linguist’s domain to a very narrow domain of inquiry, one dominated by mathematical formulations of rules divined by syntacticians dipping into their own intuitions about language. This method necessarily entailed context-free interpretations of sentences. Chomsky originally insisted that the task of the linguist was to find context-free rules that would generate all and only the sentences possible in a given language. In practice, this has proven impossible. Chomsky’s conception of transformational grammars is still not dead, having been revised to provide for the context-sensitivity of language (p. 123) while still affirming its context-free nature (Berwick and Weinberg 1986). In my opinion, this is an untenable position. All language is context-dependent. There is no way to achieve meaning in speech or writing without reference to context. That is the nature of the beast.


Quirk and Svartvik (1966) investigated the degree to which native speakers of English agreed upon their judgments of what is grammatical in the Chomskyan sense. They found that there was more disagreement than one would expect given the claims of transformational grammars. However, they pointed out (p. 101) that such lack of agreement on sentences was partially an artifact of the test itself. Had they provided a context for the sentences, their results might have been different. They quote Dwight Bolinger’s dictum that “stripping a sentence to its minimum … is a risky test of grammaticality; it often falsifies the potentialities of the construction.”

More recently, Fauconnier (1985) lays the blame for ambiguity on uncertainties in the discourse situation itself, not in the syntax or lexicon. Wisely, studies of the accuracy of judgments of schizophrenic speech have been based upon transcripts of connected speech. This explains the high interjudge reliability. Context-free grammars based upon individual decisions of grammaticality rest on shaky foundations. Context is the key word. That is what was missing in T-G theory. More recently some attempts have been made to make rules context-sensitive, but even so, we
are still faced with the abstract set of transformations—only now they include the context-sensitive rules, which are also both abstract and unproven.


Discourse itself has its own grammar, one that is partially autonomous, separate from sentence grammars, with its own phonological, lexical, and syntactic rules (Carlson 1983, p. 150; Sanders and Wirth 1985; Seuren 1985; Fillmore 1985; Halliday 1985; Ferrara 1985). Different kinds of discourses have their own rules of well-formedness. Gerald Prince (1982), for instance, has written a grammar of narrative structure and Livia Polanyi (1985) shows that conversational storytelling is constrained by culture-specific rules which are comparable to dialect differences in syntax. Phonologically, intonation contours mark out syntactic structures, prominent focus, and such paralinguistic messages as surprise, anger, and disgust (Carlson 1983, pp. 151), a point elaborated on as well by Kreckel (1981), Sanders (1987), and Lyons (1977). Sanders (1987, p. 11) likens the speaker's choice of what to say next in a discourse to “... the selection of lexical entries” in the sentence. Just as one chooses a word in a sentence according to sentential constraints, so one chooses the syntax of the sentence in the discourse.

Therefore, even if individual sentences taken out of context are well-formed, the discourse within which they are embedded may not be. VanDijk (1977) calls the level of phrases and sentences the MICROSTRUCTURE, as opposed to the discourse or text, which is the MACROSTRUCTURE. In the circumstance that microstructures by themselves show no deviance, but the discourse does, one would have to conclude that such sentences are deviantly produced because they do not properly form a macrostructure. Just as the meaning of a sentence is ultimately a function of the discourse within which it is embedded, so is the appropriateness of a sentence.

In actual usage, there is no way to separate sentences from their context and no way to judge well-formedness without considering both. Deviance at the macrostructural level comprises disruption of linguistic abilities. For instance, each of the sentences in example 9 below is well-formed, yet the entire is bizarre. In the original presentation of these data (Chaika 1974; Chapter 1), there were three utterances composed of gibberish interspersed throughout this monologue. Here, they
have been omitted in order to prevent a contamination effect. Thus, the following monologue has actually been normalized to mitigate the effect of deviance, but the entire remains as deviant as before.

9. Good mornin' everybody.
I don't know what that is
Oh! It's that thorazine. I forgot I had it.
That's Lulubelle.
This one's Jean. J-E-A-N
I'll write that down.
Speeds up the metabolism.
Makes your heart bong.
Tranquilizes you if you've got the metabolism I have.
I have distemper just like cats do 'cause that's what we all are, felines.
Siamese cat balls.
They stand out.
I had a cat, a Manx, still around somewhere.
You'll know him when you see him.
His name is GI Joe, he's black and white.
I had a little goldfish too like a clown.

On the microlinguistic level, the above phrases and sentences are well-formed, but they fail on the macrolinguistic level, and that alone establishes their deviance. Judgments of deviance depend as much on the fit of the sentence to the discourse as they do on the fit of phrases and words to sentences.

Each genre of discourse has its own set of rules. Constraints on narratives in our culture, for instance, may not operate on sermons, lectures, making small-talk, or communication of factual information (e.g., Goffman 1981; Chafe 1980; Chaika 1989, pp. 98–192). Narratives are governed by temporal ordering whereas sermons are not. Sermons require an overt moral whereas narratives do not. Such constraints on the macrostructure operate analogously to the rules for micro-structures like phrases and sentences. Additionally, there is cross-cultural variation in what is allowable in a genre and even in what is necessary, what must be included and what may not be (Labov 1969, 1972; Scollon and Scollon 1981; Tannen 1984; Jarrett 1984; Chaika 1989, pp. 98–192.) Violation of such cross-cultural constraints are more likely to be perceived as rude or pointless than as bizarre.

Rules on each level of language aid in our ability to be creative. Every language has within it permissible sound combinations, some that have not yet been used, hence can be used to create new words. For instance, I could invent a game called “Bilotec” or a product called “Marfem.” There could even be a new theory of psychiatry, called “Logology” (the science of words). Sentence and discourse-forming rules allow even greater creativity, albeit creativity constrained by rules. Frequently, if not most always, speakers either use old words in new contexts to force new meanings rather than make up brand-new words, although that, too, does happen. Alternatively, compounding is used, as occurred when the first person referred to stealing as ripping off. A third avenue of creativity is to borrow words from another language. This is typically done because of admiration for another culture, as when Latin and Greek words were adopted for the budding sciences of the 17th and 18th centuries. Native words could have been created, but the Classical languages were associated with scholarship. Neologisms and gibberish don’t fail because they’re creative. Language is structured to foster creativity. They fail because they are not used so that cospeakers can apply rules or strategies for decoding. This is a direct result of language’s not being an isomorphic system.


Why insist on the word rule? Why not use Martin’s term and simply call them conventions, or, as Sanders does, call them constraints? Why not refer to expectations in discourse? These are NOTATIONAL VARIATIONS, different words for the same phenomena. The problem is that these three terms, although referring to the same phenomena, imply that adherence is not necessary, when it clearly is. Is it mere constraint, expectation, or convention that prevents

9. A: Where did you go last night?
B: No
9C. A: Are you coming?
D: I wore a yellow tulip.

Such matters as adverb placement not using the progressive form with stative verbs or the use of do when negating verbs are obligatory. In
verbs are obligatory. In the same way, one can't answer a question asking *where* by either a *yes* or *no*. The *where* demands a location or an "I don't know." These are grammatical error on the level of the discourse itself.

These aren't just conventions, expectations, or constraints. Native speakers know that 9 A–D are wrong, and can be righted by following the rules for adverb placement or verb conjugation. The errors in 9 A–D are discourse errors, and anyone, even a quite young child would be likely to say of 9B, something like "You can't answer that question with 'no'" or of 9D "You can't answer that with 'I wore a yellow tulip.'" One might, instead, say something like, "What kind of an answer is that?" to either 9B or 9D. This is another way of saying, "You can't answer that question with . . ." The very normal and usual choice of *can't* indicates the existence of tacit rules. It takes no particular training or expertise for people to recognize and be able to correct a wide variety of linguistic errors.

[11] **The Levels of Language.**

As part of its lack of isomorphism, language consists of layers of interrelated rules. Each layer has its own rules, and rules which connect it to the others. PHONETIC rules, those indicating pronunciation of individual sounds, form PHONOLOGICAL rules. These in turn form MORPHEMES which form LEXICAL ITEMS which form SENTENCES which in turn form DISCOURSES.

[12] **Phonetics, Phonemes, and Morphemes.**

A brief consideration of the intricacies of the sounds of language illuminates both the rule governed nature of language and the FUZZY BORDERS that are also its nature. Beyond such enlightenment, phonology illuminates for us what must be accounted for in any theory of psycholinguistics. The level of phonetics is the most describable, most limited part of language, but its complexity is nevertheless boggling. In fact, even such apparently simple matters as articulating specific sounds is loaded with intricacies unsuspected by the novice in linguistics.

One would expect that schizophrenics suffering from severe speech disruption would show difficulties even at this level. Unfortunately, our phonetic record of schizophrenic articulations is almost nil. Over the years, the few researchers who have discussed gibberish have not been equipped to make phonetic transcriptions so that their discussions have
been little more than vague impressionistic descriptions. Laffal (1965, p. 85), for instance, speaks of a patient who “launched into gibberish that sounded like a mixture of Chinese and Polish, with a distinct conversational prosody.” Why Laffal attributed the gibberish to these quite different languages is not clear, nor does he tell us if the patient was a bilingual in these or any other languages. Robertson and Shamsie (1958) also attributed the gibberish their patient produced as belonging to different languages. If gibberish has sounds that occur in a language not native to the speaker, or one not known by the speaker, then that would indicate a deficit in the phonetic and phonemic systems. These are the lowest levels of linguistic structure, those most automatic; still they are highly sophisticated and intricately rule-governed phenomena. It is not inconceivable that severely SD patients would make errors at this level. No two languages share the same phonetic and phonemic systems; errors can be made in these systems.

Unfortunately, except for my own transcriptions of gibberish (Chaika 1974; Chaika and Alexander 1986), there are no transcriptions of reported gibberish. My own transcriptions do not reveal disruption at these levels. Holzman et al. (1986, p. 361) claim that “It is noteworthy that as the exemplar group of psychotic patients, schizophrenic patients do not violate these phonotactic rules.” They do not cite corroborating studies. Looking at the pattern of linguistic disintegration, one would expect very little disruption at this level, but it is possible that some patients could regress to the point of phonetic and phonemic error. Laffal’s and Robertson and Shamsie’s impressions that they were hearing foreign language gibberish might arise from such regression unless the patients in question were multilingual and their gibberish could be traced to their other languages. There has not been sufficient transcription of gibberish and neologisms by trained phoneticians to verify whether or not disruption occurs at this level. If and when such studies are undertaken and even if it is found that schizophrenics do not ever make phonotactic errors, there is still plenty of evidence at the other levels of language that structural disruption does occur in schizophrenia. The rest of this chapter is devoted to showing these disruptions. In addition, it will be argued that analysis in terms of linguistic disruption does not posit factors that we cannot observe and does not demand adherence to any particular psychodynamic theory.

The above discussion shows the importance of having a basic understanding of how phonetic and phonemic systems work. Even when lan-
guages share a sound, it won’t necessarily be pronounced the same way in each language. This occurs for two reasons. The first is that any sound can be articulated somewhat differently. For instance, in English, we pronounce a [t] by placing our tongue tip on the alveolar ridge behind the top teeth, but many European languages do so by placing the tongue tip behind the spot where the upper and lower teeth meet which is where English places the tongue to make a [θ], th in thing. Different languages also hold each sound for a different length of time. American English does not hold consonants as long as some other languages.

Another reason for the impression that gibberish might be in a foreign language has to do with another complexity in sound systems: the PHONEME. Each sound we think we hear is actually a group of sounds. In American English, for instance, the PHONEMES /p/, /t/, and /k/ are actually ASPIRATED before stressed vowels as in pill, till and kill. This can be felt by pronouncing these words holding a finger in front of the lips. A puff of air will be felt. No puff, or a much weaker one, will be felt when pronouncing spill, still and skill, as they are not aspirated if they follow an /s/ or occur at the end of a word, as in spill, still, skill, rap, rat, and rack. Additionally, in American English (but not British), intervocalic /t/ and /d/ are both pronounced alike, as a [D], the medial consonants heard in both betting and bedding which are pronounced alike. Disparity in phonetic rules across languages accounts for misperception of sounds in the foreign language. This, of course, is what causes us all to have foreign accents in our nonnative languages.

What this all means is that if a patient who is a monolingual native speaker produces neologisms and gibberish that sound like a foreign language, their speech may be so disrupted that they are misapplying phonetic and phonemic rules of their language. So far, there is no hard evidence of this occurring, but, so far, to my knowledge, no phonetician or linguist has transcribed large amounts of gibberish. Harry Whitaker, a neurolinguist, says that there are aphasics with what he calls the foreign accent syndrome as they misapply phonemic rules so that they sound foreign. It may also be that modern practices of medication for psychotics forestall such a complete disruption of speech that even the phonetic and phonemic systems disintegrate. If a patient is found whose gibberish shows such disintegration, not only is it caused by the most profound disruption of speech possible, it is not the sort of thing one can control. People are unaware of the intricacies of phonetic and phonemic rules until they are introduced to them by courses in linguistics, and the
rules are so below the level of awareness, that such matters are very
difficult to learn and next to impossible to manipulate.

To complicate matters, what we hear as separate sounds on the phone-
monic level may become one sound during certain word-forming processes
known as **morphophonemics**. For instance, /s/ and /t/ are different
sounds as in *sat* and *tat*. They are phonemically distinct. However, in sets
of words like *idiot*-*idiocy*, the [t] alternates with [s] The <c> in *idiocy* is
pronounced as an [s], but we still perceive *idiocy* as being formed from
*idiot* with a suffix that indicates “state of being an idiot” (Chomsky and
Halle 1968). Examples of morphophonemic regularity can be multiplied
logarithmically. Think of alternations of the actual sounds in *critic—*
*criticize, music—musician, persuade—persuasive*, and *acquire—acquisition*.
Sometimes, as in the latter two examples, the sound change is indicated in the
spelling. At others, as in the previous examples, it is not indicated. Still,
we have no particular trouble alternating the final [k] in *critic* with the [s]
in *criticize*. All languages are subject to such alternations in their word
creation systems. The miracle is not that some patients with disrupted
speech do produce gibberish but that there is not more disruption at
these levels as they are fraught with complexities.

These examples alone show that language is neither perceived nor
created by any simple equation of stimulus and response. They also
show that we do not have a list of forms in our heads from which we draw
when we speak. There is probably a good evolutionary reason for this.
Communication would be hindered greatly if speakers had to scan
through the enormous lists of words in their lexicons every time they
wanted to say something, conversation would be considerably slowed. It
would be slowed even more when, in the heat of talk, they first selected
one word, say an adjective, and then decided to recast their sentence so
that the same meaning has to be achieved by the related form of a verb,
as in

- **He gets red** — uhh — **reddens** when Lola says, “hi!”
- **Try to make it prettier** — uhh — **beautify** it
- **I hate to be critic** . . . uhh — **criticize**.

If language were not rule-governed, such switching of morphologically-
related words would entail scanning the lexicon until one came upon the
related word. Furthermore, it would be highly inefficient to store each
form with a common root word separately. That would take a great deal
more “brain space” than does applying rules to sets of words. Also, if we
store *critic-criticize* holistically as two separate forms, why do we have entire sets of words which follow the same rule? If there were no rules, that would be the most inefficient system of all.

Certain schizophrenic errors can be explained as failure to apply morphophonemic rules. In fact, the schizophrenic data show that such rules exist. The following response came from one patient:

10A. I am being help with the food and the *medicate* . . .
10B. You have to be able to *memory* the process . . .
10C. . . . to open up the old testament and start to *memory* it.

Each of these errors was repeated in the monologue. Each boldfaced word fails morphologically by failing to add the appropriate DERIVATIONAL MORPHEMES, those which change words from one part of speech to the other. The patient has not added the -ion morpheme to turn the verb to its corresponding noun. He has failed to convert *medicate* into *medication*. Note that the final [t] sound in *medicate* turns to the sound represented by *<sh>* in our orthography in *medication*, so that this failure represents a morphophonemic one as well as a morphological one, and in 10B and C, he failed to change *memory* to *memorize*. It is not the case that the patient has had a general failure in syntactic rules because his word order and marking of syntax like the noun determiner *the* correctly. We can explain the deviation in 10 A–C only by referring to the morphememic rules of noun formation from Latinate verbs. This argument is bolstered by the fact that his syntactic failures devolve upon INFLECTIONAL MORPHEMES: failure to put the preterit ending of *help* in 10A and the possessive in

10D . . . to speak and think in the lord tongue

These inflectional morphemes are also governed by morphophonemic rules. The preterit ending is variably pronounced as [t], [d], or [Id] depending on the last sound of the verb. Consider the pronunciation of this morpheme in “picked, played, and lifted.” They are all spelled the same, but pronounced differently. The possessive is variably pronounced as [z], [s], and [Iz], as in “lord’s, patient’s, and Tess’s.” Again, the spelling gives no clue. The patient fluctuated between omitting verb and noun morphemes and not. Given the fact that these rules are among the most every-day ordinary ones in the language, this argues for a generally impaired ability to apply morphemic rules.
In other instances, as we have seen, a patient forms recognizable morphemes into neologisms like *puterience* and *plausity*.


Many researchers have attempted to find a schizophrenic deficit on the level of the word, basing their research completely upon their conception of what a word is. This is natural, but it can also lead to invalid experiments and fallacious conclusions. In order to illustrate this, we must consider the question, "What is a word?"

We all know that we form speech from words, that we give our word, and that we have words for things. In practice, however, it has proven remarkably difficult to come up with an all-encompassing definition of *word*. Phonetically, the distinction between the level of the word and the sentence is frequently obscured because inter-word phonological rules do get applied to phrases, as when we speak of "coffee to go." Typically, we pronounce the \(/t/\) in to as a \([D]\) in this expression. The opposite also occurs: sentence intonation may be applied to a word, as in "Coffee?" The rising intonation gives this the force of a full sentence, such as "Does anybody want some coffee?" Actually, if the full syntactic form of the question is given, the intonation is usually like that of a statement with the voice dropping at the end of the sentence.

Orthographically, for the European languages at least, we frequently think of a word as a group of letters surrounded by a space. This was not ever thus. Medieval manuscripts, for instance, crowded as many letters as possible onto a page. Consequently, such niceties as spaces between words were not provided. So ingrained is this concept that one some researchers have simply assumed that this is how a word is defined. For instance, Hart and Payne (1973) taped interviews with schizophrenics, aiming for 500 word discourse. These researchers counted as a word "a group of letters not containing a space which is preceded by and followed by a space which corresponds to a word listed in a dictionary." Dictionaries vary greatly in their listings of words, so they are hardly a foolproof source (p. 645). They say that they excluded "letter groups" such as "uh." These are not letter groups. They don't even appear in writing, unless the writing purports to be a representation of speech.

Hart and Payne report that they had to prompt most patients to get the quota of 500 words, leading one to question how natural the resulting data were. In any event, eliciting a 500-word corpus from each subject is
an impossible task, even if one has a foolproof definition for word which as the next section shows, we do not. In any event, the researchers had a typist transcribe the tapes so that the Type-Token Ratio (TTR) could be ascertained. This is the ratio of the number of different words used to the total number of words in the sample. TTR has been used as a measure of cohesion, but it fails because one need not repeat the same word to effect cohesion. One can use its synonym or a phrase which means the same thing. In fact, in Chapter 6 we shall see that repetitions of a word or even its synonyms can impair cohesion drastically.

In order to get the TTR, there has to be an accurate word count, of course. As is true of every other study that I have ever seen utilizing a TTR, Hart and Payne do not seem aware of any of the difficulties in their procedure. For instance, does one count the sequences like have to or want to as two words or one? These are certainly pronounced as one, e.g., “hafta” and “wanna.” They certainly function as one as well, being verb auxiliaries, part of a large system known as catenative auxiliaries. Should we count contractions like can’t, won’t, they’ve, or they’ll as one word or two? Is won’tcha two words or three? Given misspellings like < should of > for should have, we certainly know that some even highly educated native speakers aren’t sure of what the elements in a contraction actually consist of. This, too, is part of the fuzzy border phenomena.

Worse yet for TTR data, consider pronouns which refer to long noun phrases, such as the it in

11. Max bought the big old Victorian house on the corner. It needed a lot of work.

Does this it count as one word? Or does it count for the entire phrase which it replaces, “the big old Victorian house on the corner.” There’s another problem in 11: is a lot of three words or one? Phonologically, it is usually counted as one: “alotta.”

Even as a definition for the written word the “space surrounding the word” test doesn’t work. For example, consider words like hardhearted, hard-hitting, hard hit, and hardihood. The English orthographic system is notoriously inconsistent in applying hyphens to some compounds, writing others as one word, and still others as two. How, then, does one reliably count what a word is simply by counting those surrounded by a space the typist has inserted?

Regardless of the written conventions, we can tell that words are compounded by the fact that there is a special stress pattern in com-
pound words. This is realized by the rise and fall of the voice, as well as the length of the vowel. Try saying the pairs greenhouse vs green house, blackboard vs black board. Notice that if you say safe house in the sense of a hideaway operated by the police for the protection of witnesses, you get the same rise and fall that you do for greenhouse and blackbird. If, instead you are speaking of a house which has been well-constructed, it is pronounced with the same patterns as green house and black bird, but the same spelling is used whether safe and house are being used as a compound or as two separate words. The writing is not as good a guide to compounding as the spoken sound patterns.

In English (and many but not all languages), part of our feeling of what constitutes a word derives from our grammatical morphemes such as plurals and tense markers. The thing that we put these morphemes on is what we consider a word, so that in roses and played, we feel that the words involved are rose and play, both of which can stand alone with no endings. In contrast, the vagaries of the English possessive play havoc with this concept of a word. Notice the way English allows a possessive to be put upon an entire phrase, such as

The woman next door’s sister . . .
The guy who I dated last year’s car . . .

As awkward as these are in writing, they are commonly used in speech. Some are used even in formal writing, such as

The Queen of England’s jewels.

Therefore, the definition of a word as the formation which can take inflectional endings fails.

Cross-linguistically, the problem of what a word is is even more vexatious. In some languages, however, there are few “stand-alones.” For instance, note the Swahili-English equivalences:

- atanipenda “he will like me”
- atatupenda “he will like us”
- tutampenda “we will like him”
- unamsumbua “you are annoying him” (data from Gleason 1955)

Most English speakers would agree that each of the above glosses is composed of four words, the pronoun subject, auxiliary, verb, and pronoun object. The pronouns and the auxiliary are GRAMMATICAL WORDS, also known as FUNCTION WORDS, and the verbs are full LEXICAL ITEMS.
have to be placed on lexical items according to the rules of that particular language.

The corresponding forms to our four-word sentences look strangely like one word in Swahili. Whoever collected these data wrote the Swahili forms so that they appear as one word. In fact, anthropologists who collected languages which to us are exotic have reported that there are languages in which there are no words as we know them. Rather, what we would think of as a phrase or sentence, those languages treated as a word.

In languages which are declined like Russian, there are far fewer words that stand alone than in a language like English. Russian, being a highly inflected language, requires words to have endings on them which tell how they are being used in a sentence. English conveys such messages largely by word order. Therefore, English speakers think of Russian words, nouns, for instance, as roots to which inflectional morphemes are bound.

An even more fallacious concept of words is that they are some kind of fixed entity. Bleuler’s belief that the glossomanic chaining of schizophrenics results from associative loosening rests upon such an assumption, as does Bannister’s (1960, 1962) theory that schizophrenics fail to use constructs as fixed points. By “constructs” Bannister (1960, p. 135) apparently means “words.” Bleuler’s, Bannister’s and Chapman, Chapman, and Daut’s (1976) explanations based upon word association testing depend upon static constructs, but words have no fixed meanings. By their very essence, they are fluid. Lieberman criticizes those who equate words with tokens, pointing out that

...one of the most salient characteristics of... words... [is that]... they are not tokens for things; they instead convey concepts. The meaning of a word never is precisely equivalent to a thing, a set of things, or even a property of a set of things. (Lieberman 1984, p. 80)

An even more salient characteristic of words is their inherent flexibility. By their very nature, they change according to the ingenuity of speakers in employing them in different contexts. Such change is the heart of metaphor, the ability to take a word or words from one domain and apply it to another. Without such flexibility in word usage, language wouldn’t be so immediately accessible for swift encoding of messages in response to new contexts. Given the context of an utterance hearers usually can ascertain the intended meaning. In the course of a day, we all may use, hear or read new usages of old words. Zippy writing in car magazines,
news weeklies, and ads attest to our abilities both to produce and comprehend. It must be emphasized, however, that I am not here referring only to artistic or professional word usage, but to an everyday capability of everyday people in everyday circumstances.

Looking at words historically shows us how pervasive the plasticity of words are, resulting over time in drastic changes in intension, all the meanings of a word. Take the word *bulb*. It originally referred to an onion, then to any plant with a bulb-like root with fleshy long, narrow leaves, then to any round bulb-like swelling as in the bottom of a thermometer, then to the round glass vehicle for the incandescent light. Now it can also mean tube-shaped lights such as fluorescent bulbs. There is even a nautical meaning referring to a cylindrical shape at the forefoot of certain ships. *Bulb* seems to have extended its original referents. Sometimes words lose their original meanings entirely. *Hackney* was originally a fine riding horse, then a horse for hire, then a worn-out horse, then, in the 17th century, a prostitute, and now a trite expression. It is easy to see how these meanings became extended with ordinary use. Perusing any historical dictionary reveals the omnipresence of changes in word meaning.

There is nothing remarkable in schizophrenic failure to maintain “fixed constructs.” What is remarkable, in its original sense of “worthy of remark,” is that in some way, the normal flexibility in word usage goes awry so that schizophrenic creations are perceived as being abnormal and difficult to follow.