Review of Pinker's *The Language Instinct*

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In his 1994 book, *The Language Instinct*, Steven Pinker attempts to convince the reader that language is essentially innate. Pinker would probably describe himself as a psycholinguist, perhaps a developmental psycholinguist, following in the lineage of Roger Brown. While Brown, along with many protégés, seemed to have separated from Noam Chomsky's position on the issue of the innate nature of language, Pinker was an apparent holdout. Some of his apostasy, as he tells it in Kessell (1988), began when he returned to attend classes at Harvard and found the contents to be "vague and metaphorical."

Judging from several of Pinker's publications, his chief concerns have been with learnability theory, and in discovering how children learn the correct grammatical expressions if, as he believes, no negative corrections are specifically applied to grammar by parents (Pinker, 1990). One assertion that he has made is that they learn an alternative behavior or form of expression. A recent publication by Marcus et al. (1992) uses data obtained from Brown by Pinker to describe the course of children's overregularization; the use of regular verb endings for irregular verbs. Several of the experimental papers cited by Pinker in this book have had the benefit of his counsel and are usually said to address issues in learnability theory.

Among the usual hyperbole on the book's jacket is an apparent endorsement by Noam Chomsky. Knowing the way of

publishers, this may have been an excerpt from something longer, and less flattering, but there is throughout the book a patronage of the Chomsky approach, and how it demonstrates the innate character of language. A number of pages are devoted to explaining phrase structures in the Chomskyan style and other issues. As a source of some less painful explanations of Chomsky's views, those chapters would probably be useful if the reader can set aside the author's rather obvious bias that ties language to a heritable mental apparatus.

Invoking Charles Darwin and William James, Pinker begins to muster support for his major thesis that language is innate to the human species. His thesis goes beyond merely calling language a specialization. Along with Chomsky he believes that inborn blueprints for grammar are what determines the universality of language. He states that each new sentence represents a "brand-new" combination which he contends is programmed by a mental grammar. Like Chomsky he cites the ease with which children develop these complex grammars "rapidly and without formal instruction" (p. 22). A line at the end of the first chapter nearly summarizes the book as "highly eclectic, ranging from how DNA builds brains to the pontifications of newspaper language columnists." Later in the book he adds to language a number of other human traits or faculties which he believes are specifically inherited.

Chapter 2 ranges widely, as do many of the later chapters. From the first contacts of European explorers with New Guinea tribesmen, Pinker concludes "There are Stone Age societies but no such thing as a Stone Age language." Pinker gives exam-

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ples of differences between B.E.V. (Black English Vernacular) as a specialized language and S.A.E. (Standard American English). While citing the numerous differences between many languages, the consistencies within a language (or sub-language) are presented as evidence of the same guiding mental syntax. Pinker will occasionally concede that common exigencies, or human limitations, might produce similar universals. For example, all languages have terms for water or foot. However, he quickly moves on to other issues. The recounting of Derek Bickerton's views on the transition from Pidgin to Creole languages is interesting as is Singleton and Newport's¹ description of Simon, a deaf nine year old who learned to sign correctly from his parents' flawed example. Both are intended to exclude all but an innate explanation. He dismisses any influence from "Motherese" and the "folklore that parents teach their children language." Pinker's statements are based on the acceptance of Brown's conclusions that the transcripts of parents and children show parents correcting content errors, not mistakes in grammar. Pinker does not cite any of the subsequent work by Ernst Moerk (1980, 1981) on the same Brown transcripts. As with other topics, he seldom acknowledges a contrary opinion or finding. Rather than admit an inconvenient argument he simply restates the original Brown (1973) conclusions and the "poverty of the input" argument of Chomsky (1957).

Pinker's first grappling with English grammatical examples (pp. 40-41) presents "moving words around" to form questions as an original, creative act of children. The two examples are the contrasts between "A unicorn is in the garden. → Is a unicorn [] in the garden?" which he contrasts with "A unicorn that is eating a flower is in the garden. → Is a unicorn that[] eating a flower is in the garden?" (brackets added). Here he takes up an earlier argument that a finite state device (Pinker's left to right scanning model) would not properly account for grammatical inversions of this

sort (Chomsky, 1957). Pinker's argument is that such a model, taking each word as it's encountered, would not work to produce the correct grammatical outcome as humans regularly do in English. Instead Pinker proposes that the phrase *a unicorn that is eating a flower* behaves as a single unit and that the *is* contained in it is "invisible to the question forming rule." Pinker cites research by Crain and Nakayama (1987)² in which (Experiment 1) four and five year olds can comply with a statement such as "Ask Jabba if the boy who is watching Mickey Mouse is happy?" by asking "Jabba, is the boy who is watching Mickey Mouse happy?" Pinker does not cite other details of the research, which are in some ways more interesting than his claim of an innate grammatical response. The experimenters defined the grammatically correct responses as preserving the original noun phrase "the boy who is watching Mickey Mouse." The results showed a clear age related effect in producing the correct response; the younger group of children tested (mean age 4-3) had less than half the percentage of grammatical sentences (38%) than the group averaging a year older (80%). Of particular interest to researchers were the types of errors actually produced. The most common was adding an extra auxiliary verb *is* as in "Is the boy who is watching Mickey Mouse *is* happy?" The other, less common error, added the pronoun *he* to the final clause in this same example "Is the boy who is watching Mickey Mouse, *is he* happy?" The study's authors attribute the exceptions to the "structure dependent rule," especially as posed by the first and most common of the errors, as due to performance factors citing Chomsky's distinction between performance and competence. They do raise the question of whether the children's responses really represent a true inversion of the statement, but then reject the possibility. None of the children's ungrammatical responses, however, simply caused the first auxiliary verb *is* to be moved in front such as "Is the boy

¹Unfortunately from an unpublished manuscript.

²Pinker cited a year earlier (1986), and in his references, a volume earlier, than was found.

who[] watching Mickey Mouse is happy?" thus supporting the rejection of the left to right scanning hypothesis.

Pinker assumes that the ability to invert a sentence is "wired in" while the nature of the errors and their relation to age would suggest that the errors are transitional to later forms (behaviors). Since the research required strong modeling of the phrases, the positive results could well be a function of the procedures used. It is not necessary to assume that all supposed inversions, like those in active to passive sentences, represent a true inversion of their logically opposite member. They may be related in the behavioral sense by common intraverbal or thematic (topical) elements. In other words, is there anything to explain given the results found here?

Contentions similar to Pinker's, that noun or verb phrases (or even smaller subdivisions) may "behave as a unit," antedate Chomsky. While the segmentation of speech into discrete words, phrases and sentences is often held to be an intuitive one, we have little evidence for natural subdivisions. The units of writing that we call words, phrases, and sentences have been heavily supported by educational practices, literary convention, and of course, dictionaries. There are other possibilities why common combinations of terms not just the whole noun phrase such as "a unicorn...etc." can be said to "behave as a unit" under varying circumstances. Except orthographically, that "is" is a different word from the one that follows his entire noun phrase; a point that is somewhat ironically confirmed by Pinker's next major pitch. This more than the rejection of the putative hypothesis, could be the lesson from some the children's errors.

Pinker, in the same chapter, proposes that the speaker who emits the English suffix -s in *He walks* has to keep track of four things: (1) person (he walks vs. walk); (2) singular or plural subject (He walks vs. They walk); (3) tense (He walks vs. He walked); (4) habitual or momentary (He walks to school or He is walking to school). He supplies these cumbersome explanations to utterances which would be more

simply explicated by his "behaves as a unit" notion, if applied to something other than noun or verb phrases. Pinker then gives the example of a child's mastery of the English agreement rule in the transcribed speech of Sarah from Roger Brown's (1973) *Adam, Eve, and Sarah*. She does so, he says, despite the fact that the agreement rule is no longer very useful in English. Pinker gives examples of Sarah's (and supposedly her parents') correct use of all forms of -s followed by her several recorded errors; "When she *be's* in the kindergarten; He's a boy so he *gots* a scary one [costume]; She *do's* what her mother tells her." Pinker uses this to support his claim that children do not imitate their parents; "language acquisition cannot be explained as a kind of imitation" (p. 45). Pinker here accepts as the contribution of imitation only exact and rigid correspondence in all matters, including mannerly behavior on airplanes. He continues with a discussion of the localization of speech in Broca's aphasia (a Mr. Ford); introduces the topic of SLI (Specific Language Impairment) that overlaps with that of a later chapter and gives examples of the talk of a "linguistic idiot savant" called Denyse, who has spina bifida and hydrocephalus. He attributes her "chatterbox syndrome" to the hydrocephalus. In discussing Denyse's speech he speculates that "Perhaps the ballooning ventricles crush much of the brain tissue necessary for everyday intelligence but leave intact some other portions that can develop language circuitry" (pp. 51-52). In the two "chatterbox" cases that this reviewer has witnessed, the person has been confined to a wheelchair, or even more limited circumstances, and commands a lion's share of caretaker attention by their verbal behavior. Pinker does not mention any circumstances, but apparently quotes from a reference by Cromer (1991). He notes similar behaviors in children with Williams syndrome, a chromosomal defect resulting in developmental delay without hydrocephalus. Most of his descriptions of phenomena are presented in the form of anecdotes, and should carry the same cau-

tions that we add to other interesting, but selective accounts.

In the chapter titled "Mentalese" he repeats, in the tradition of other psycholinguists and linguists, a by now overworked objection to the more questionable of B. J. Whorf's writings. His presentation is a truncated version of a much earlier Roger Brown critique. In *Words and Things* Brown (1957) had presented his case against Whorf's *linguistic relativism* and *linguistic determinism*, which he represented then as, respectively, different *world-outlook*, and *cognition*. Brown (1957) had written,

The Nootka language of Vancouver Island is polysynthetic....A single word will often express something for which a sentence is required in English. Where English arranges a sequence of free forms to say "He invites people to a feast," Nootka makes affixations to a basic verb stem to yield something that may be literally translated: "Boiled eaters go for [he] does."...It is as strange as the Apache way of saying it is a "dripping spring" which Whorf finds to be "as water or springs whiteness moves downward." (p. 231)

Brown goes on to say: "In the classroom where European languages are taught it is customary to...liberalize translation procedures so as to guarantee equivalent meanings. With Shawnee, Nootka, Apache, and Hopi (though never with European languages), Whorf changed this usual procedure, insisted on a literal translation, and concluded that world views differ." Brown (1957, p. 232) illustrates the more literal translation of European languages by quoting from a humorous address by Mark Twain. His target throughout is the notion of *linguistic determinism* or its twin, *linguistic relativity*³, which he says would cause those speaking different languages to have a *cognitive psychology* unlike our own. He emphasized "relativity is assumed in the premises underlying Whorf's 'unsympathetic' translations." He admits somewhat later, after discussing Whorf's view of nouns, verbs and such, that perhaps the study of European languages could benefit from a more literal translation as well.

³John Carroll, Whorf's (postmortem) anthologist, apparently coined the term *linguistic relativism* to describe Whorf's opposition to traditional grammatical categories. The term seems more descriptive of Pinker's comment "there are no stone age languages"; a simple corollary to *cultural relativity*.

Pinker joins several generations of psychologists who have taken exception to Whorf's view, both in experiment and rhetoric. Pinker repeats Brown's excerpt from Mark Twain, and launches into a derogation of an Eskimo-names-for-snow "myth" but seems to avoid a discussion of Whorf's critique of grammar and syntax that was at least acknowledged by his predecessor. Pinker seems to reveal his lack of first hand knowledge of Whorf when much later, on page 372 (bottom), he calls the prescriptive grammars of the English mavens "radical Whorfianism," which is clearly a twist. Whorf's remarks were in many ways the complete antitheses of prescriptive grammars; he would probably have championed much that Pinker says later in a discussion of word classes (see especially pages 105 & 106).

Pinker's chief reason, it seems, for challenging the "Whorfian" hypothesis is to discredit the notion that language and thinking are identical. He offers as further evidence some of the traditional problems of language study: ambiguity, lack of logical explicitness, co-reference, dependence on context, and synonymy. It is interesting to compare Pinker's comments on synonymy with those of Skinner on the same topic. Pinker cites the following sentences as examples: *Sam sprayed paint on the wall*; *Sam sprayed the wall with paint*; *Paint was sprayed onto the wall by Sam*; *The wall was sprayed with paint by Sam*, then comments that "Something else that is not one of those arrangements of words must be representing the single event that you know is common to all four" (p. 81). He had earlier asked if "we use some other code...a language of thought or mentalese that is not the same as any of the world's languages?" (p. 78). This, and the foregoing, make an interesting contrast to comments on synonymy by Skinner (1957):

The only common factor is among the controlling variables. The argument that an idea must exist in some nonverbal form, since it may be expressed in many different ways—either within a single language or different languages—may be answered in the same way. There is no true synonymy in the sense of a choice of different forms. When all the features of the thing described have been taken into

account and when the audience has been specified, the form of response is determined. (p. 175)

Most of Pinker's other traditional paradoxes could be treated much the same. The fact that Skinner's statement antedates Pinker's by more than 30 years, simply indicates that all of the arguments have been around for a very long time, and in various fields of endeavor. Where Pinker sees paradoxes abounding in the illogical or inscrutable parts of a sentence, Skinner looks outside those restricted confines for intraverbal, thematic and audience influences, most of which are absent in the written, punctuated and segmented words or "strings."

Chapter 4 (*How language works*) is an attempt to present what Pinker calls "the design of grammar." Before proceeding, however, he cites examples of prose, poetry and curiosities of language that are more entertaining than enlightening. He does get to an explanation of a finite state device or Markoff model, popular in the 50's in psychology and linguistics⁴. This is the same left to right scanning device that became the object of a hypothesis in Crain and Nakayama's (1987) research referred to earlier. At the end of the demonstration of the word chain's inadequacies, he suggests phrase structure grammars as a fitting substitute. Here Pinker (pp. 105-106) repeats, and seemingly endorses, what some linguists call *gradience*: the view that traditional word classes are less easily defined than thought previously (Crystal, 1987). Referring to the noun word class as *nounsey*, for instance, Pinker discusses at length the various ambiguities of most English noun classes. "A part of speech, then, is not a kind of meaning; it is a kind of token that obeys certain formal rules, like a chess piece or a poker chip." His final sentence in the same paragraph states "Nouns are *often* used for names of things, and verbs for something being done, but because the human mind can construe reality in a variety of ways, nouns and

verbs are not limited to those uses." This appears to leave a gap in our understanding when these difficult to identify word classes are used in heading a phrase, as in noun or verb phrases, in his explanation of Chomskyan grammar. He does an able job of giving examples of what a noun phrase is, even though we may not be satisfied with his definition that a noun "is a word that...does nouny things." We learn that the noun phrase the *cat in the hat* is about a cat and not a hat, but not how a rule was applied to discover that.

Thereafter Pinker describes the various features of phrase structured grammar with help from statements like "Within a phrase, then, the verb is a little despot, dictating which of the slots made available by the super-rules are to be filled. These demands are stored in the verb's entry in the mental dictionary." Earlier he has assured us that no homunculus occupies this mental apparatus; but here a verb and later computer algorithms and assorted metaphors seem to be filling that niche. When Pinker attempts to explain X-bar notation and traces (p. 124) he states that "Traces, cases, X-bars, and the other paraphernalia of syntax are *colorless, odorless, and tasteless*, but they, or something like them, must be a part of our unconscious mental life" [emphasis added].

Some chiefly behavioral arguments come from Pinker's chapter entitled "Words, words, words" (Chapter 5). Here Pinker mentions Gordon's (1985) results which indicated (and rather strongly) that children as young as the 3-4 year range (mean 3 years, 8 months), did not regularly form compounds with regular plurals (rats-eater) but did with irregular compounds (mice-eater) and for many, but not all, mass nouns for which no singular exists (so-called *pluralia tantum* nouns—e.g., clothes). For Gordon, and no doubt Pinker, this suggests "an innate structural property of the lexicon." To support this, Gordon claims that "the child almost never hears compounds containing irregular plurals." This leaves you wondering how children (and supposedly adults) who so readily make such compounds, would then

⁴According to definition a Markoff chain is a very limited process, but its refutation by Chomsky (1957) in generating sentences is often inferred to be a refutation of all chaining phenomena.

never hear them from each other. No citation for empirical evidence of this "poverty of input argument" is offered in the Gordon article or by Pinker. Instead intuitive arguments are advanced (Chomsky's native speaker again) for the uniformities presented under the label *level-ordering*. Pinker cites Kiparski (1982) in which English speakers uniformly choose "*Darwinianism* over *Darwinismian*." For one possible reason, the reader may want to attempt pronouncing the two words. In a later chapter of the book (Chapter 6, *Sounds of silence*), Pinker offers a reasonable explanation in terms of articulation and phonology for why we say "*fiddle-faddle*" versus "*faddle-fiddle*," or "*ping-pong*" rather than "*pong-ping*" (p. 167), and another for why we say "*razzle-dazzle*" instead of "*dazzle-razzle*" (p. 170). He doesn't, however, entertain those or other alternative explanations here. For Gordon's results, we might want to ask why, if regular plurals end in the -s, is that not a factor here?

There are, in fact, a very large number of odd conventions in English that linguists, amateur and professional, have noticed over the years. Whorf (1957) indicated a consistent ordering of English adjectives such as *round red* vs. *red round*. Whorf tried to defend this as illustrating laws of ordering, but his choices seem not to have held up over extended examples. We typically say *jolly fat man* rather than *fat jolly man* but that would seem to lend itself to an intraverbal explanation more readily than a rule extension. Maratsos and Chalkey (1982) illustrate a number of *can't say* combinations, which on closer inspection seem to be better described as "not frequently said at the present time" (Mabry, 1993). Comrie (1989, p. 77) offers another and interesting one when he compares the practice of saying "John and I" with the non-standard but common "Me and John" when the positions, but not the grammatical case, are reversed. Can these, and literally thousands of others, be dismissed by attributing them to innate mechanisms? How such regularities occur may be an interesting question quite apart from their relevance to innate categories, rules or

structures. It is obvious that a more thorough-going functional analysis is desperately needed in place of Pinker's contrived ones.

In the same vein as Gordon's, Ellen Markman's (Markman & Wachtel, 1988)⁵ results on mutual exclusion, though not quite as robust, should provide interest to research in behavior analysis. A recent article by Huntley and Ghezzi (1993) explored the relation between what cognitive theorists call mutual exclusion, in their experiments, and what is investigated by behavior analysts as exclusion. Ultimately these are the closest citations of relevance to our field, and probably shouldn't be ignored. It would be nice to see a more dynamic approach to the phenomena than those afforded by the standard, and rather static, group design. Surely these phenomena have more to tell us than that presented by Pinker in support of an innateness hypothesis. Intriguingly, exclusion as a training procedure seems to be part of a continuum with oddity and non-match to sample. These latter procedures have been successfully employed with non-human organisms; oddity with monkeys and non-match to sample with pigeons (cf. Skinner, 1950). They may also be of interest because they seem to be forms of teaching that are less direct than those assumed, and contested, under the poverty of input argument. In the remainder of Chapter 5 (and Chapter 6), Pinker touches on some traditional linguistic concerns, but if your need is for reference rather than entertainment, Crystal (1987) would be a better source. Chapter 7 explores more Chomskyan grammar, explores more sentential ambiguities, and gives a number of examples of the *trace* concept, one of those patches used to shore up leaky grammars (Harris, 1993). Again, Pinker occasionally gains entertainment value in place of clear expository writing. As a result, the reader is more likely than not to lose whatever threads of argument have run through the several chapters. There are some isolated examples of interesting linguistic phenomena, but they are

⁵Pinker refers only to a book by Markman, where here I refer to the primary source article.

all treated with the same references to mental dictionaries and the like or as added examples in support of innativity. His arguments do not always follow from one another and at times appear to be contradictory. By shifting the scenery and metaphors, and a liberal use of the latter, Pinker makes it difficult to challenge him on a given point.

In Chapter 8, Pinker cites Greenberg's (1963) comparative analysis of a number of languages as indicating that there are universals across languages which Pinker would like us to believe are innately determined. In an attempt to appear unbiased, he initially gives two exceptions to the innateness hypothesis. His first is the possibility that all languages had a single source. He handily demolishes this as a source of language similarity, citing among other things, the rapid changes of which languages are capable. He does not mention, as does Comrie (1989) the multiple real, and areal (secondary) contacts between cultures, which could account for some of the uniformities. The only other exception that Pinker will acknowledge overall is his second attempt in which he proposes that languages may "reflect universals of thought or of mental information processing." That is to say, universals that are not peculiar to language per se, but this is hardly a concession to a causal analysis.

Pinker's treatment of Greenbergian universals is rather casual. An example, a quotation from the very first universal, which Pinker only paraphrases, will give some indication of the limits of these as true, or absolute, universals. Greenberg's first universal states, "in declarative sentences with nominal subject and object, the dominant order is *almost* always one in which the subject precedes the object" [emphasis added]. That is, there are few or possibly no instances of objects preceding subjects in the languages (and among the sentences) sampled. The provisional nature of these universals is further emphasized by the later finding of languages which seemed to admit VOS and OVS orders (Comrie, 1989). While there is no doubt that certain orders seem to be dominant

among languages, the generality of the findings have a number of alternative explanations, as both Comrie and others have shown. For example, Comrie (1989, p. 94) indicates that a preference for certain types of word order may reflect the order of actual events, as well as the saliency of the subject and object in any type of action. For Skinner (1957, p. 332) the order of actual events is one of five "plausible correspondences in actual verbal and nonverbal events and our adherence to order" (Mabry, 1993). Others have mentioned that the grammatical subject is often the speaker themselves, which might suggest their apparent dominance, and lead position, in many languages (Lempert, 1984). In addition most languages have more than one predominant subject-verb-object ordering. "Té amo" seems perfectly good Spanish which violates the canonical word order of Spanish and could be read as an OVS (you love I) word order since the subject, in this case the "I" of English is encountered in the ending of *amo*, as first-person-singular of "*amo, amas, ama.*" This is just one of those things that gives classifiers of word order trouble. Pinker eventually admits that "perhaps subject precedes object because the subject of an action verb denotes the causal agent." This is similar to Comrie's salience argument above. Pinker calls such "functional" explanations tenuous and harks back to the *Darwinianism* versus *Darwinismian* argument of Chapter 5 as a preferred explanation, inferring that word order is of the same phenomena. He adds "It is hard to see how this *law* could be the consequence of any universal principal of thought or memory" (p. 236) [emphasis added]. He thus dismisses the last of his straw arguments.

As Greenberg pointed out in the volume quoted and as Comrie (1989) does later, the universals are used by Greenberg to explore family resemblances among various languages. They were based on a limited sample of each language (100 phrases or sentences of each), sacrificing depth for breadth of coverage. The number of universals cited and additional ones alluded to by Pinker give the strong impression

that we are to believe that some among so many must be of stronger stuff. The reader would do well to notice the provisional and conservative nature of the Greenberg statements. What is most startling about his entire presentation of the Greenberg universals is Pinker's sudden about face. Having argued for the relevance of the Greenberg-type universal, he abruptly abandons it as "some laundry list of facts" (p. 236).

Pinker then turns his attention to Chomsky's formal universals as the true universals of language. He claims that the "tens of thousands" of words that all languages possess (probably true) are sorted into parts of speech categories including nouns and verbs (not necessarily true) and depending on how stated, probably wrong—given the loose definition for nouns and verbs achievable, as seen previously on pp. 105-106. He declares that:

Words are organized into phrases according to the X-bar system (nouns are found inside N-bars, which are found inside noun phrases, and so on). The higher levels of phrase structure include auxiliaries (INFL), which signify tense, modality, aspect, and negation. Nouns are marked for case and assigned semantic roles by the mental dictionary entry of the verb or other predicate. (p. 238)

All of which sounds like a description of some features of the English language, rephrased and made into an explanation by the use of such explanatory fictions (Skinner, 1953) as a mental dictionary.

Early, Chomsky refrained from claiming that word classes and the like were true universals, citing instead as *substantive* universals the English noun, verb, personal pronoun, direct object, etc. not necessarily in the form that is common to other languages, but rather the general functions that they fill in each language community (Mabry, 1993). Terms which fulfill the function of nouns in English, take a decidedly different turn in other languages. For the Cado language, a term indicating house can only be rendered into English as something like "that which we call a house" (Chafe, 1976). For Navaho, Kluckhohn and Leighton, (1974) cite "nouns" which have tense changes as verbs do in English. Pinker admits to the

relativity of the common word classes elsewhere, but rather blithely fashions other statements, as the above, without reference to this insight. His statement that nouns "are marked for case and assigned semantic roles by the mental dictionary entry of the verb or other predicate" (p. 238), perhaps serves him as a partial explanation of the noun word class.

The anomalies of speech or writing, like those *impossible* combinations and arrangements, clearly have some basis in, if not genetics, then some subtle determining factors in the environment. It was, I believe, George Carlin, who repeated at length six "dirty words" which were unspeakable in public. In a short skit the unacceptable were made commonplace. It seems apparent that some of the so-called *impossible* terms of English (or other languages) might succumb to the same treatment. If we violated one or two rules of conventional usage and did so repeatedly, would we emerge unable to understand our previous standard usage? That is not to say that any of the phenomena noted, both here and over the years, is unrelated to any important laws of language or nature. Once we get over the notion that word combinations are unsayable, we might ask the more reasonable question as to why they are uncommon, and how this is generalized across a population of speakers / listeners. The question, seldom addressed, and never by linguists of this tradition, is whether and what such things have to do with intelligibility, a mature area of research since at least the 1950's. Taken one at a time, it should be possible to answer such questions empirically. Somewhere this has been proposed by some intrepid linguist only to be dropped because his field doesn't ordinarily measure such things.

Chapter 10 (*Language organs and grammar genes*) ranges widely with anecdotal accounts of aphasics and the well known part played by the peri-sylvian areas of the cortex, some discussion of DNA, neural networks, the "K family" described as "three generations of SLI sufferers," and a mention of the "spooky" similarities

between twins in the Minnesota study. It closes with quotations both flattering and unflattering to their authors. Spoonerisms and malapropisms are extensively cited for George Bush and Dan Quayle. Pinker repeats his advocacy for the recognition of a particular language disorder, Specific Language Impairment (SLI), as part of his evidence for innate language mechanisms. His description of SLI is similar to Gopnik and Crago's (1991) original, however omitting the data in favor of narration.

Gopnik and Crago studied an extended family consisting of half fluent and half dysfluent members, each representing age and sex distributions in roughly equal proportions. To the researchers, as to Pinker, this composition suggested a genetically transmitted defect. In the study, they tested about half of the dysfluent members of the family; those whose only remaining dysfluencies were classed as grammatical. The basic problems were with tense, person and number and were more pronounced in some than others. Both Gopnik and Pinker minimize the effect of earlier, and somewhat severe, articulation problems with the same subjects and instead tend to treat the inheritance as a purely grammatical one. There also seems to be a generational trend in the test results with the three eldest family members showing progressively severe dysfluencies which goes unnoted in their analysis of the study. The study also assumes a homogenous environment for all family members.

The three subsequent chapters inveigh against ape language (including Sue Savage-Rumbaugh's Kanzi) in a discussion of the evolution of the language instinct; argue against prescriptive grammars and their proponents; and in a final chapter called Mind design excoriate cultural relativity and the social malleability of all behavior. Pinker concludes by adopting Fodor's concept of "Modularity of Mind." In fact Pinker proposes some fifteen modules other than language which would be inherited. The list includes: intuitive mechanics, intuitive biology, number, mental maps, habitat selection, danger, food, contamination, monitoring of current

well-being, intuitive psychology, a mental Rolodex, self-concept, justice, kinship, and mating. His dismissal of cultural relativity, after posing as a proponent of sorts elsewhere, seems to point to Pinker's lack of grasp of the concept and its history. He scorns what he calls the Standard Social Science Model (SSSM) as represented by Boas, Mead and everyone's favorite target, John Watson, and proposes to substitute "evolutionary psychology." This last seems to be a hodgepodge of his selection of anthropologists, psychologists and linguists sporting a large collection of universals; all the representations he has made in this book.

Although I find the major thesis objectionable, and the arguments advanced in its defense specious, onerous and untrue there are things to admire about *The Language Instinct*. Pinker's choices of Woody Allen quotations are without blemish and the book tries to maintain a light, jocular tone between arguments. In some cases this last may simply disguise a weak argument, and it does keep one from dotting too much on details, which may be to Pinker's advantage. Because of this, however, it is difficult to take the book too seriously. It was obviously aimed at a popular audience which might not discern the numerous non-sequiturs. He quotes from George Bush, Dan Quayle, Yogi Berra, Dr. Seuss, Vladimir Nabokov, Martin Luther King, Jr. and William Shakespeare, to name just a few. He is at least correct in not subscribing to purely prescriptive rules of grammar but fails to identify that the universals which he touts are, in all probability, of only a slightly different genre. He uses rather casually several computer metaphors: *data structures*, *breadth first* vs. *depth first* searches, *left to right* scanning, *trees*, *neural networks*, *push-down stacks*, *recursion*, *algorithms*, *strings* and most frequently, *retrieval* (from the mental dictionary). What is most curious about using computer terminology as "explanations" of various human behaviors is that computer science borrowed these same terms from common descriptions of human activities, and applied them as a close human analog

to the behaviors of the computer. The only way that one can describe such a practice is by saying that the terms have come full circle. Elsewhere Pinker borrows the prestige of neighboring sciences such as genetics and neurology, through analogy, to bolster sagging arguments.

Also on the positive side, the "Sounds of silence" chapter has some rather painless ways of introducing some principal phonetic and phonological facts. For instance, why the same smallest speech sound is not always produced by identical behaviors (called coarticulation), depending upon other parts of the utterance. Even here there is a tendency to skip too easily to other topics and, unfortunately, the reader is likely to miss any serious implications of the facts presented. His argument with those he calls "language mavens," such as William Safire, is sometimes on target but in the process takes on the somewhat biting tone of these professional critics as well.

The major contribution that the book makes is the great number of examples, apparent paradoxes, and the like which greatly concern structural linguists, or structurally oriented psycholinguists, and apparently some in the fields of philosophy and literary criticism as well. Only some kind of translation into a more operational language would tell whether they are worthy of answers. Skinner (1957) has already given us some examples of how to proceed.

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