Noam Chomsky in 1969

by Richard Kostelanetz (May 2016)

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> These display what all scientific revolutions are about. Each of them necessitated the community's rejection of one time-honored scientific theory in favor of another incompatible with it. Each produced a consequent shift in the problems available for scientific scrutiny and in the standards by which the profession determined what should count as an admissible problem or as a legitimate problem-solution.
> —Thomas S. Kuhn, *The Structure of Scientific Revolutions* (1962)

Noam Chomsky's recent reputation as a political polemicist has obscured the fact that another revolution, this one more successful, has been tied to his name. The academic discipline of linguistics has changed drastically since Chomsky and his "Transformational Generative Grammar" invaded it less than fifteen years ago. His radically new way of looking at language, especially English, has won increasing influence and respect within his own and other professions around the world. No other Anglo-American professor just over forty, notes the British philosopher Ernest Gellner, "can calmly refer, without immodesty and with full justification, to his own work of a decade ago as 'classical' or 'standard' and then contrast it with not one but two intellectual generations of subsequent revisionists of it."

Chomsky's classes at M.I.T., where he is Ferrari P. Ward Professor of Modern Languages, are filled with students who have not registered. The one after lunch that I attended, in a lecture hall, was officially a graduate "seminar" entitled "Linguistic Structures 23.752." Chalk in hand, he moved between the blackboard and the podium, sweeping his arms as he spoke, talking in an intense, animated, rapid and yet nervous and rhythmically uneven style that occasionally lapses into incomprehensible mumbles. Of average height, slender, erect posture, pale complexion and closely shaven skin that is pulled tightly over his features, as

well as round, black-framed, Barry Goldwater spectacles and a few grains of gray in his temples, Chomsky looks somewhat younger than his forty-two years. Undefined in appearance, informally dressed, he struck one reporter as “a rural-looking man [who] might pass for a feed-and-grain-store clerk,” but Chomsky reminded me of a quietly bright, alert and indubitably sober young instructor too poor, too diligent, or too apprehensive to stand out from the crowd. He cuts his hair close and high at the temples, neatly parting it on the left, and combs the front into a curly pompadour, a head style reminiscent of the middle fifties; and the cowlick in the back of his head is boyishly visible. He strives to focus his energies, apportioning no more than a situation requires, as well as exhibiting tremendous powers of application. Nearly every extended essay he writes, for instance, takes only a few long working days and comes out of the typewriter fully formed on the first draft, needing only revision of detail.

On the blackboard he scrawls rather peculiar sentences, not to convey messages but illustrate certain linguistic principles, as he then speaks about language in a particular way, generalizing about syntax, meaning and coherence. He notes in passing that “like” and “love” must be functionally different, because there is no “dislove” analogous to “dislike.” A student suggested the sentence “John dreamt that Humphrey won in 1968 and that Bill knew it” as an example of another linguist’s theory of “world-creating verbs.” Chomsky, remembering that hypothesis in a professional journal, dismissed the argument as “incoherent: I couldn’t make much sense of it.” After hearing haltingly articulated evidence in its favor, he rules with a sweep of his arms, “I would be perfectly happy with a theory that rules this sentence out as semantically anomalous—someone dreaming that someone knows something that is factually impossible. The issue is the semantics of knowing.” Other hypotheses were pursued to their conclusion, either acceptance or refutation, and defective sentences were dismissed as “incoherent,” “misleading,” “untrue,” or “plausible, though factually wrong.” The discussions, as well as the examples, were entirely in English, for “linguistics” deals with knowledge about language, rather than knowing languages. Much the commanding figure, Chomsky listened patiently to all other points of view, but in the end his fast and abrupt mind won all debates without needing to raise his voice or embarrass anyone. Just as the slight body masks a wiry frame, so beneath the self-conscious modesty and frequently apologetic manner is all the tenacity of a fullback two steps from the goal line.

After class, we walked a half mile back through interminable and undecorated corridors to his office, which sits at the end of Wing C of a WWII jerry-built edifice that resembles a fire-trap and contributes to M.I.T.'s ludicrous riot of visible architectural styles. "I've been in this building fifteen years and much prefer it to those glass square things," he snorted with a pointed finger. "No matter who they hire to design a new building, it always looks hideous in context." We moved past his secretary and into an inner office, the corner with windows on two walls, a blackboard on another wall, and piles of off-prints (of his own essays) on sparse shelves. Surrounded by institutional light-green walls of beaver-board and cinder-block, completely unadorned by either paintings or decoration, we began to speak of his life—a subject as unusual as his thought.

Born December 7, 1928, the elder son of a Russian émigré professor of Hebrew language and culture at Gratz Teachers College and Dropsie University (mostly for rabbis) in Philadelphia, he grew up hearing himself called "Norman" and eventually changed the pronunciation of his surname from the Hebrew glottoral "ch" (almost "horn-sky") to the more American "ch" of "chom-sky." As his father's scholarly efforts included an edition of the Hebrew Grammar of the 13th-century Sephardic scholar David Kimhi, the son remembers, "My first experience with linguistics, though I did not know its influence at the time, was proofreading this book at the age of ten or so." Chomsky went to a progressive elementary school attached to the Temple University School of Education. "That was the last good school I went to. High school and college were dead in comparison." As a teenager, he developed an avid interest in politics, doing much of the reading, particularly on the Spanish Civil War, that informed his later political essays. "By the time I was fourteen I had worked my way through the YPSL, Trotskyite, and Stalinist positions. I evolved an anarchist critique that left me rather rootless." Since the young man's summers were spent at Hebrew-speaking camps, he also moved along "the fringes of left Zionism," as he now calls it, although, then as now, he opposed the creation of an exclusively Jewish state. (Recently, he wrote an essay charging that Israel cannot sustain a military regime "and still keep alive what was of permanent human value in Zionism" and favored instead a bi-national socialist state "like Yugoslavia.")

Continuing to live at home, he entered the University of Pennsylvania at 16, in 1945, earning spare money by teaching Hebrew, disliking college enormously,

thinking of emigrating to Palestine, but accidentally encountering Zellig S. Harris at a political function. Harris (b. 1909), then as now Professor of Linguistics at Penn and a maverick by temperament, had just finished his magnum opus, *Methods in Structural Linguistics* (not published until 1951). Before taking any courses in the field, Chomsky the student was invited to proofread this manuscript. "That's how I learned linguistics, by proofreading Harris's book—which gave me a comprehensive knowledge of the field. He was the first guy there I respected in an intellectual and human sense, and it was the first work I'd gotten excited with." Since his implacable new pupil, as Chomsky now puts it, "always hated studying 1anguages—I still do," Harris put him to work on analyzing Hebrew. The young man devoted some effort to the other Semitic languages; but this eminent "linguist," a chaired "Professor of Modern Languages," now claims only a Ph. D.-exam "reading knowledge" of German and French, and no acquaintance at all with either Greek or Latin. Chomsky's M.A. thesis on the "Morphophonemics of Modern Hebrew" (1951) traced the development of the post-Biblical language. Since he used rather conventional scholarly ideas about linguistic evolution, as well as knowledge gleaned from his father's work, young Chomsky largely avoided the methods of the then-established new persuasion in the field—structural linguistics.

Nelson Goodman, a philosophy professor at Penn, nominated Chomsky for the junior fellowship of Harvard's Society of Fellows. This became the first of two crucially fortunate breaks in Chomsky's professional career, as the appointment offered the young scholar, and his even younger wife, three years of modestly supported leisure. The first year he largely spent following Harris' cue about the application of mechanical counting procedures to a corpus of linguistic data, such as the incidence of phonemes, and even wrote his first published paper on "Systems of Syntactic Analysis" (1953). His elders in the field then thought that the newly developed computer could process all this information with stunning results. "It was and is impossible," he declared, chuckling uncomfortably at this sole confession of failure. "There is no set of analytic inductive procedures for language, because the nature of language is too abstract. At the time it never occurred to me that this was wrong, so for a year I beat my head against a wall."

One truth he would continually reiterate holds that the complexity of language needs an equally complex theory. On the side, so to speak, Chomsky was

developing another interest he then took less seriously, because it lay well outside the frame of immediate problems and traditions in the field—a generative grammar of Hebrew. Since the junior fellowship also granted a “grand tour,” the Chomskys spent several months on a Kibbutz in Israel.

American structural linguists, following the initiative of Leonard Bloomfield, rejected the prescriptive grammarians (with their Latinate standards) purportedly to define the reality of linguistic usage. However, since they limited their interests to descriptions and characterizations of surface sounds and structure, they risked generalization only to the extent of taxonomically classifying data that could be empirically observed and verified. Since both deeper analysis and abstract hypotheses were ruled out of its scholarly order, the dogged empiricism of the structural linguistics limited a scholar’s possible inquiry and insights into language. Chomsky, coming into the field with esoteric interests and explanatory schemes developed in other disciplines, quickly took several leaps beyond the established frame of concern to cook up a different kind of linguistics brew. His earliest radical ideas coalesced, first, an interest in deep explanation, exemplified by abstract forms, and structure, in contrast to superficial description of linguistic phenomena; second, an array of analytic tools derived from modern logic, philosophy, and metamathematics, particularly recursive functions theory (which belongs to the foundations of mathematics); third, an aspiration to the intellectual rigor and precision inculcated by these disciplines, fourth, a concern with processes that cannot be empirically observed, such as the changing mental procedures one could infer from the historical development of grammar and pronunciation, and fifth, a decision to work henceforth only in English “because you have to have a native-speaker’s intuition to develop that kind of theory.” The junior fellowship, then as now the only American institution of its kind, allowed him the leisure to pursue his wayward ideas.

They eventually grew into a thousand-page manuscript on “The Logical Structure of Linguistic Theory,” which Chomsky then submitted to a publisher, whose linguistics advisor reportedly judged, “This certainly isn’t linguistics”—an opinion which Chomsky accepts. “It certainly wasn’t, as the field was then constituted.” He tried at the time to publish articles, but none were accepted by the linguistics journals (a few, though, slipped into scientific magazines): and when in 1954 he had to get a teaching job, linguistics chairmen ruled that

he did not know any foreign languages well enough to lecture on them. “I wasn’t fit to teach anything except Hebrew. I had an offer from Brandeis which I didn’t accept.” So his junior fellowship was renewed for a fourth year; and a section extracted from the large manuscript, “Transformational Analysis,” became Chomsky’s doctoral dissertation at Penn.

“The first real linguist who was enthusiastic about the work I was doing on my own was Morris Halle,” a linguist in the old style who grew up speaking five languages and later learned many more (including those bogeys, ancient Greek and Latin). At the time he was a promising protégé of Roman Jakobson, the doyen of refugee linguists in America and then a Professor at Harvard. It was Halle, already teaching languages at M.I.T., who persuaded Jerome Weisner, then head of the Research Laboratory in Electronics, to hire Chomsky as a research associate in a government-funded machine-translation project (which Chomsky, then as today, regarded as hopelessly unfeasible). As a concession to convention, he agreed also to teach elementary French and German to scientists.

This less than attractive job turned out to be the second fortuitous circumstance in Chomsky’s unconventional career. By the next spring, he also got to teach the introductory undergraduate course in linguistics, and in the following year, 1957, he and Halle founded a graduate department in the field. Still shy of thirty, he began dropping the loaded ideas that eventually revolutionized the field. Becoming a full professor at M.I.T. in 1961; he received the chair in 1966. Since his university has “a loose disciplinary structure,” he has also taught courses classified in philosophy, logic, psychology, mathematics (the theory of automata) and humanities (actually politics).

Politics, more familiarly, is the other realm of Chomsky’s eminence; and the evening we met, he went to speak to the Boston chapter of the Medical Committee of Human Rights (the counter-A.M.A. organization). His fluently articulated sentences developed less a coherent argument than a miscellaneous critique of American society—the economy is “failing to deliver the goods” to the poor and discriminated-against, World War II got us out of a depression and the arms race keeps the capitalist economy prosperous, NASA is “more involved with creating the state religion than any work that is scientifically important or socially productive,” the McCarthyite tactic of “guilt-by-association” was invented by the “liberal” Americans for Democratic Action during the Henry Wallace campaign

years before McCarthy, the U.S. is run by a “power elite,” intellectuals have been abdicating their moral responsibility, “liberalism” is functionally impotent, the Presidential campaign is irrelevant. “I voted once in my life for the Presidency—not for Johnson but against Goldwater; but knowing what we know now—that Johnson had no intention of getting out of Vietnam—I think that was a pointless act. I vote more regularly for local candidates—school committees and such; that’s important.”

He spoke critically of youthful guerilla activities, which he thought alienated more people than they persuaded. “No large-scale revolutionary change is possible unless supported by the overwhelming majority of the people; there is no shortcut for achieving that. Otherwise, you’ll get another kind of autocracy. Radicals must have a plausible and persuasive concept of what the new society is going to look like, and we must assume that the people we are trying to teach are moral and rational.” Ideologically he classifies himself in the “anarchist tradition,” which, he finds, “offers an important alternative to the autocracies of the present-the bureaucratic socialism of the Soviets and the military state capitalism of the U.S.” No one listening to Chomsky talk politics could question his purposes or honesty—neither personal ambitions nor vulgar cynicism color his criticisms—or fail to comprehend why he is so highly respected as a man.

When asked about the specifics of his own vision, Chomsky mentioned the classic liberal ideals of true civil liberties, minority integration (rather than separatism), disarmament and international self-determination (and, thus, American disengagement from entangling alliances). “Most of all, people should determine democratically the character and policies of organizations with which they are associated—factories, universities, cities, and whatever they may be. Need I add that capitalism and democracy are incompatible.” In his Saab on the way home, I reluctantly commented that his political ideas were scarcely as innovative as his linguistic thought; and he admitted modestly that what he argued that evening could and would just as well be said by others. “Groups like this tend to ask the same people over and over again; and while I feel obliged always to say yes, I’ve tried to cut down on traveling. I lost twenty pounds last year, and I don’t like speaking outdoors, or to very large audiences. The seminar is really my appropriate milieu.” But what if he could develop a new ideology, a radical way of thinking, which would be as conceptually innovative and true as his linguistics? “If I could find that, something as intellectually

satisfying and still socially important, then there would be something to devote myself to entirely. I might even give up linguistics."

His linguistics thought, in contrast, is so remarkably innovative that not only do Chomsky's political colleagues largely ignore it, but established scholars in his academic field could, only a few years ago, piously dismiss it as "not linguistics," whatever or wherever that institutional hell might be. His theories also run contrary to the established empiricism of contemporary academic philosophy and psychology by rejecting hard-line naturalism for a consideration of mysteries beyond the verification of strictly empirical procedures.

Furthermore, not only do even educated people rarely think profoundly about something as common and intimate as language, but the conceptual originality of Chomsky's abstractions make them quite unlike current ideas in any other field, as well as resistant to useful metaphors. Explanations customarily begin with these simple sentences:

I persuaded John to leave.

I expected John to leave.

I told John to leave.

Most of us learned, in seventh grade or so, that since all these sentences take the same form of diagram, they are structurally identical: but Chomsky replies that those diagrams merely document their surface structure. A more insightful diagrammatic scheme would demonstrate more subtle syntactical differences in their deep structure. "That the sentences differ in syntactic structure," he writes, "is evident from a consideration of their behavior under certain formal operations. For example, in normal conversational English the sentence 'I told John to leave' can be roughly paraphrased as: 'What I told John was to leave.' But we cannot say: 'What I persuaded John was to leave.' "What I expected John was to leave.' Furthermore, the sentence 'I expected John to leave' differs from the other two in that it can be paraphrased by 'it was expected by me that John would leave.' But we cannot say: 'It was persuaded by me that John would leave' or "It was told by me that John would leave.'

"If we think through what is implied by such examples, we see that in such

sentences as ‘I persuaded John to leave,’ “John’ is both the object of ‘persuade’ and the subject of ‘leave’: whereas in ‘I expected John to leave,’ it is only the subject of ‘leave.’ These facts must be represented in the percept since, clearly, they are known unconsciously by the person who understands the speech signals in question. The knowing is unconscious and by no means available to immediate introspection—it has, in fact, escaped the attention of generations of excellent and careful grammarians.” Offering two more illustrations of his general point, he noted first that “John is easy to please” is not the same sentence as “John is eager to please,” although their surface structure looks similar, because “John” is the object of the first sentence and the subject of the second. Secondly, when confronted with these two nonsensical sentences:

Colorless green ideas sleep furiously

Furiously sleep ideas green colorless

a native speaker all but instinctively recognizes that the first, and not the second, is grammatically feasible. In short, upon syntactical puzzles and explanations like these were Chomsky’s subsequent hypotheses built.

“There was a natural progression,” he told me, “from studying the observable facts of a language and perhaps giving a description of this data, as the structural linguists did, to formulating the systems of rules and the deep structures that explain this data, and much other data not observed, such as sentences not known before. Remember that normal experience includes many new sentences which we simply have not heard or read before. If you want to convince yourself of this last remark, the easiest way is to coin an arbitrary sentence and wait until you hear it, or read the *New York Times* until you find it.” The point is that since a human being can quickly produce, as well as understand, an infinite number of comprehensible sentences he has not heard before, then our use of language is in practice less habitual than thoroughly creative. This extremely shrewd observation underlies his further thinking.

To isolate the essence of linguistic usage, what Chomsky first did was define the fundamental syntactic structures which inform all sentences in the English language; and from these abstract grammatical forms could ideally be derived, or “generated,” by rules of transformation, all possible English sentences. “Transformation,” in this case, refers to the structural shifts that the same

words undergo in the change from one kind of surface form to another. Take, for instance, the simple sentence “I donated the bike,” which has three constituent parts—a subject (dubbed NP1), a transitive verb (dubbed VT) and a direct object (NP2)’ whose symbols refer not to parts of speech but elements in a linear system of representation. According to Chomsky’s set of generative rules, all such sentences, if transformed into the passive voice, run:

NP1 + Aux + VT + NP2 = NP2 + Aux + be + VT + (by + NP1)

Thus, in our example (where the original has no auxiliary), the right side of the equation produces the following correct sentence: “The bike was donated by me.” The point is also that, the different surface structures notwithstanding, the deep structure—the relation between “me” and the bicycle—remains unchanged. Of course, such rules are designed for more complicated sentences (after their constituent parts are sorted out), and the scheme provides equally precise, accurate, and succinct formula for other transformations.

“A generative grammar should capture what you know in a language, and what you know is not data at all but a system of rules that accounts for the data,” he continued. “We observe that you cannot habitually do what you haven’t done before. Therefore, the question is how do you understand a sentence you’ve not heard before. My answer is that you know and use the rules that determine the form and meaning of these, and all other sentences.” That is, embedded in one’s subconscious mind are abstract principles of organization which enable one quickly to comprehend the wordy arrays confronting us. From an approach that is ultimately inductive, rather than purely deductive, Chomsky derived rules that are generative, rather than merely descriptive. This research, which he characterizes in retrospect as more “rationalist” than “empiricist,” produced a set of enormously ingenious abstract formulas, in format like the one for passive transformations quoted before. These serve to define the basic action of a sentence—by underlying method, rather than surface description; and this system of analysis demands its own forms of bracketing and diagramming. The structure of the theory—all the abstract equations with little superficial relevance to words—seems close to mathematics or logic. However, since the rules are accurately applicable to language, no disciplinary category is more appropriate than “Linguistics.”

So the first stage in Chomsky’s ‘linguistic analysis is deriving the fewest

number of rules (a “Chomskemics”, so to speak) applicable to infinitely many grammatical sentences in a particular language. One major criticism holds that he studies not real usage but ideal speech—not performance but actual possible competence. Chomsky replies that both the linguist and the child want to master the underlying system of spoken-heard language and, thus, that his rules describe ideal structures that are known intuitively, if not sub-consciously, by every native-speaker. “This kind of idealization,” he explains, “is necessary in any serious inquiry. Another frequent criticism is that no language, not even English, has been thoroughly analyzed. “It’s true,” he replies, “that we are, in a sense, getting further from a complete grammar all the time, in that the horizon keeps receding as more and more is learned, as in many fields that are still alive. I don’t see that as a criticism.”

Once he argues a linguistic hypothesis, Chomsky himself is less inclined to qualify or verify than extrapolate further generalizations and philosophical implications. A next level of Chomskyan abstractions deals with discovering a universal generative grammar relevant to all languages. “What are the conditions that any human language must meet,” he declared, rocking back in his torn swivel chair, “that is, what are the conditions that define the essence of every human language?” Then as later, he paused to make sure I got every word down correctly; and when I read back my occasional rewordings of his statements, he would (like a logical positivist) frequently insist upon his clumsier original for the sake of linguistic precision. “If we could discover this set of conditions, then we could generate the class of human languages—what is or isn’t possible in a human language, as distinct from an artificial language, like those used in computers. This is the most important question for the present.” So in the works at M.I.T. are researches into the generative rules of other languages, which are usually studied by “native-speakers,” imported to Cambridge from a variety of esoteric places.

From this sense of language organization leaps one of the most radical hypotheses in Chomsky’s thought—and also the most controversial, precisely because it hits smack against contemporary naturalistic thinking (though linking to a more classical tradition): the implication that the systems intrinsic language reveal the existence of an unconscious intelligence. That is, whereas behaviorists and logical positivists assume that human beings are inherently malleable and, thus, that language-learning can be attributed to habit acquired

by stimulus-response, Chomsky suggests that the child brings a certain “innate knowledge” of language structure to the problem of learning language—literally a set of inborn predispositions to generate coherent sentences—regardless of whether their environment’s tongue is English, Japanese or Swahili. “It’s amazing that a three-year-old makes use of these rules, even if he is not conscious of them, and often in spite of physical and social handicaps. The child’s manipulation of a simple sentence shows subtle knowledge, which is not taught by habits and cannot be learned from books; and this grammar seems no more ‘learned’ than, say, the ability to walk is learned. Once you ask what in a child’s experience enables him to develop this grammar, you conclude it must come from the mind itself, and you must give up behaviorism. The intuitive appeal of behaviorism came from its failure to recognize the complexity of the human achievement; but our sense of this failure can be turned into a precise critique. First of all, there is no significant resemblance between human and animal communications systems. Second, there is no racial or environmental differentiation detectable as far as the ability to acquire language is concerned, although some individuals are obviously more adept than others. Third, whatever a habit-structure is, it’s clear that you can’t innovate by habit, and the characteristic use of language, both by a speaker and by a listener, is innovative.” In short, Chomsky’s thought, addressing itself to the mysteries of syntactical regularity and coherent communication with unfamiliar materials discovers rather rigorous underlying principles of linguistic organizations, and then reverses direction by attributing these principles to a similarly mysterious innate competence.

Chomsky’s thought has been most severely criticized on this issue of cognitive psychology, because the hypothesis of innate competence implies the existence of a veritable ghost in the mental machine. “The empiricist view is so deep-seated in our way of looking at the human mind that it almost has the character of a superstition, and non-believers resist accepting this because they fear that God is lurking around the corner.” A structuralist, like Cornell’s Charles F. Hockett, in his book-length attack on Chomsky as “a neo-medieval philosopher,” attributes the child’s performance to both rapidly acquired habit and the adept use of analogies; and in a recent N. Y. U. symposium on *Language and Philosophy* (1969), Harvard’s W. V. Quine, known as a philosopher of behaviorism, demanded to know “what these endowments in fact are like in detail?” (Chomsky: “So would I.”) Passionate in his colleague’s defense, Halle deduced, “The child must

possess certain qualities that enable him to master language. The reason is that a child is built to learn language, much as a bird is built to learn to fly. The logical question is what are those properties that make it possible for a child to learn?" (One hypothetical study of the child's language acquisition has the witty, if obscene, title of "Cunning Linguists.") To my mind, this suggestion, which depends upon a telling observation, needs the support of more detailed research into the stages and variations in a child's demonstrated linguistic acquisition and performance.

Among the "issues still to be considered," Chomsky lists as most crucial further research into the physical bases in the human body for linguistic competence. "Ultimately, I think that there will be a physiological explanation for the mental processes we are discovering. If we found them, we would know how the acquisition of knowledge is rooted in the nature of man. My own suspicion is that our current knowledge of physical systems may not be sufficiently rich to account for the nature of mind. If you look over the history of modern science, what you discover is that the concept 'physical' has been extended step by step to cover anything that we understand." And so by now has the concept, or discipline, of "linguistics" been extended to incorporate an approach that originally seemed a hybrid between mathematics and psychology, with a dash of logic.

All these hypotheses raise the possibility of a language-learning machine (and, thus too, of a mechanical translator); but although terms from computer science and information theory sprinkle his speech, Chomsky is generally a technological conservative. In this respect, he doubts whether a finite learning process, such as the present computer, can comprehend experience as infinitely variable as actual language. "What we presently understand as a machine cannot simulate human intelligence, but whether a machine can eventually do so depends upon our conception of a machine—a notion that is not well-defined but continually changing." The next question is the possible relevance of transformational grammar to the teaching of language; and here Chomsky himself is less than optimistic. A popular textbook that was used to teach the new grammar to two of his own three children he criticizes as "replacing memorization of the wrong thing with what might be a better thing. It doesn't matter how a language is presented, for it seems that kids pick it up rather quickly. Teaching should not inculcate the development of habits. The best education is a rich and complex

environment for the child to explore; that's when learning takes place."

Since transformational grammar, as noted before, is considerably less empirical than behaviorist, there arises the question of whether these ideas are truly scientific. Chomsky replies that the true mainstream of science has dealt not just with objective facts and empirical observation, but also with the search for profound insight through the positing of deeper explanatory hypotheses. "The paradigm instance of science is physics, which is the most successful science; and it would be erroneous to regard it as concerned particularly with greater objectivity. Its aim is rather greater understanding, and it uses objective evidence as an aid toward understanding. The social and behavioral sciences, as they are practiced, provide ample evidence that objectivity can be pursued with little consequent gain in insight and understanding." As Chomsky deduced his radical theory at a precocious age, very much like other innovators in science, the pattern of paradigm and counter-paradigm so brilliantly sketched in Thomas S. Kuhn's *The Structure of Scientific Revolutions* (1962) roughly applies to Chomsky's contribution. Furthermore, as Karl Popper noted in *The Logic of Scientific Discovery* (l935), a major change in science invariably begins, as did Chomsky's revolution, with a hypothesis that explains many puzzles and yet, again like Chomsky's, may never become more than provisionally acceptable.

The perceptible difference in Chomsky's approach toward linguistics and politics suggest that the first is, so to speak, his art and the latter something else; yet the two realms connect tenuously along a common intellectual seam. The psychological dimension of his linguistics holds, as noted before, that man possesses certain innate competences. Always attentive to philosophical resonances, Chomsky links this theme to the seventeenth- and eighteenth-century philosophers' thesis that, since man has an intrinsic need to be creative, society should be free enough to maximize his opportunity. Extrapolating from his own theory of mind, Chomsky suggested, "I suppose ethical and esthetic judgments are rooted in qualities that are part of human nature, and only certain forms of social organization are compatible with human conceptual ability and moral demands. To a large extent, these biological characteristics are immutable. That is to say, they are just part of being human the same way that having legs and arms is part of being human. I would not push this too far, except to add that a reasonable sociology could grow out of some such concept of man, recognizing that human nature evolves historically and yet

also has an intrinsic unchangeable structure." In short, his linguistic conclusions define a psychology that implies a political philosophy; but not in many years has a dominant political philosophy based its rationale for democracy upon innate predisposition.

On reason for Chomsky's rapid influence in linguistics is his persistence and fecundity in expounding his point of view. Several books became the occasion for numerous reviews, as well as the media through which other scholars and particularly impressionable graduate students were led to change their minds. The professional success of his ideas exemplify the advice of the physicist Max Planck—convince not one's professional peers but their graduate students. The touchstone work, *Syntactic Structures* (1957), which presents a remarkably mature version of the major ideas, continues to have the greatest international impact. A short text culled from class notes, this inexpensive blue-cover paperback was published in English by the Dutch firm of Mouton, because "no publisher here would touch it." It is now distributed in the United States, along with several other Chomsky books in Mouton's "Janua Linguarum" by the Humanities Press. His own most succinct introduction to these ideas appears in the booklet *Language and Mind* (1968). *Aspects of the Theory of Syntax*, published in 1965 by the M. I. T. Press, is probably the richest presentation so far of his thought. In the following year appeared "Cartesian Linguistics," an essay on "the tradition of universal grammars" that is the first of several projected studies in the history of thinking about language. Only since the late fifties, when Halle recommended certain books, has Chomsky been acknowledging the relevant precedents he did not know when he began. What at first seemed a novel departure he now regards as "fundamentally a continuation of a very rich tradition"; and like all comprehensive revolutionaries, he feels the need to rewrite the remembered history as well.

The Sound Structure of English (1968), a compendious volume co-authored with Halle, grew out of a scholarly paper they published over a decade before. Ingeniously plotting the body of previously hidden rules internalized by native-speakers of English, it promises to become the definitive text in one of Chomsky's other interests, phonology, of the study of the pronunciation of words. (It also abandons entirely the "phoneme," or the basic concept upon which the earlier linguistics based its phonology.) Halle divides his younger colleague's linguistic work into five distinct areas: syntax, phonology,

semantics (the meaning of words), the logical foundations of linguistic theory, and the history of linguistic thought. It is in the third field, in particular the relevance of semantic evidence to syntactic organization, that Chomsky himself is currently doing his most promising professional research.

His 404 pages of footnoted political essays, all written in less than two years, were collected as *American Power and the New Mandarins* (1969). 313 pages of more recent pieces were published as *At War with Asia* (1970). Needless to say perhaps, his political writings have also earned criticism—ranging from Arthur Schlesinger's attack on Chomsky's documentation to the more personal charge that such a moralistic man should not allow his work and reputation to be exploited by the less-than-honest *New York Review*—Random House literary mob. In my judgment, these essays also exemplify what might be called the Oppenheimer principle—if rather familiar political opinions are uttered by an eminence in an unrelated field, they gain publicity and perhaps prestige thereby.

The hectic pace of the past few years has left Chomsky visibly more nervous and harried, his political commitments forcing him to relinquish, at least temporarily, certain linguistic preoccupations. After I closed the book in which my notes were taken, he described frankly how much he disliked certain political duties and yet felt obliged to pursue them; how much he wished political criticism would no longer be necessary and yet did not see a more congenial world in sight, and how he wanted to devote yet more time to politics and yet knew he would miss the intellectual challenge of linguistics. After all, at forty-two, the scholar's career still promises half a lifetime's fruitful years. It seemed clear to me that activism does not provide the best regime for him. It was dinnertime Friday evening in early autumn, and while driving home to suburban Lexington he got stuck in one of Boston's terrible traffic jams. On Sunday he would be in New York for a meeting of Resist ("the only organization I've had anything to do with"), which deals primarily with adult support of students' resistance to the draft; and he might stay over the night for a likely press conference on Monday. Whenever possible, he was also recruiting support for yet another forthcoming protest of American involvement in Vietnam. It was also clear that, at least until June, there would be no end to it all.

Individual entries on **Richard Kostelanetz's** work in several fields appear in various editions of *Readers Guide to Twentieth-Century Writers, Merriam-Webster Encyclopedia of Literature, Contemporary Poets, Contemporary Novelists, Postmodern Fiction, Webster's Dictionary of American Writers, The HarperCollins Reader's Encyclopedia of American Literature, Baker's Biographical Dictionary of Musicians, Directory of American Scholars, Who's Who in America, Who's Who in the World, Who's Who in American Art*, NNDB.com, Wikipedia.com, and Britannica.com, among other distinguished directories. Otherwise, he survives in New York, where he was born, unemployed and thus overworked.

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