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JOSEPH HAROLD GREENBERG
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A Biographical Memoir by

WILLIAM CROFT

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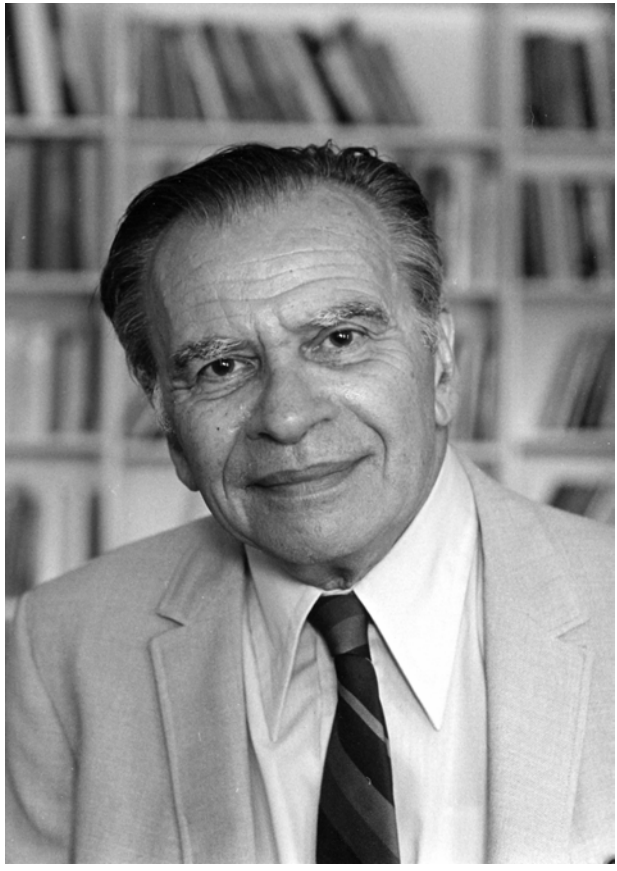

Joseph H. Greenberg

JOSEPH HAROLD GREENBERG

May 28, 1915–May 7, 2001

BY WILLIAM CROFT

JOSEPH H. GREENBERG, ONE OF THE most original and influential linguists of the 20th century, died at his home in Stanford, California, on May 7, 2001, three weeks before his 86th birthday. Greenberg was a major pioneer in the development of linguistics as an empirical science. He came of intellectual age at a time when linguistics was establishing itself as an independent academic discipline, and helped to shape the field. Greenberg's work was always founded directly on quantitative data from a single language or from a wide range of languages. His chief legacy to contemporary linguistics lies in the areas of language universals and historical linguistics. Greenberg is the founder of the modern typological approach to language universals, in which language universals are discovered inductively by the examination of a worldwide sample of languages, and explained in terms of the function of language, including the meanings conveyed by grammatical structures and constraints imposed by our abilities to comprehend and produce utterances. The typological approach has been tremendously influential, and is often compared to the generative ap-

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proach of Chomsky. Greenberg's paper "Some Universals of Grammar with Particular Reference to the Order of Meaningful Elements" (1963) is one of the most cited papers in the field of linguistics. Greenberg also single-handedly reformed the genetic classification of the languages of Africa, and aroused major controversies (which still continue) in his later work in the genetic classification of the languages of Oceania, Eurasia, and the Americas—in other words, the languages of the entire world. Greenberg also shifted historical linguistics toward the study of universals of language change, including the study of grammaticalization, one of the most active areas in historical linguistics today. In addition to these seminal and far-reaching contributions, Greenberg also made major contributions to sociolinguistics, psycholinguistics, phonetics and phonology, morphology, and especially African language studies.

Joe Greenberg was born on May 28, 1915, in Brooklyn, New York, the second of two children. His father was a Polish Jew, his mother a German Jew. His father's family name was originally Zyto, but in one of those turn-of-the-century immigrant stories, his father ended up taking the name of his landlord. Joe Greenberg's early loves were music and languages. As a child he sat fascinated next to his mother while she played the piano, and one day he asked her to teach him. She taught him musical notation and then found him a local teacher. Greenberg ended up studying with a Madame Vangerova, associated with the Curtis Institute of Music. Greenberg even gave a concert at Steinway Hall at the age of 14, and won a citywide prize for best chamber music ensemble. But after finishing high school Greenberg chose an academic career instead of a musical one, although he continued to play the piano every evening until near the end of his life.

Greenberg's fascination with languages began equally early. He went to Hebrew school, which offered only an elementary education in Hebrew, essentially how to read the script. But Greenberg got hold of a Hebrew grammar and taught himself the language. He studied Latin and German at James Madison High School. He had a friend at the Erasmus High School who studied Classical Greek, but James Madison High School didn't offer Greek. Greenberg learned as much Greek as he could from a parallel-text edition of Sophocles' plays and the etymologies of the Oxford dictionary, and asked his father if he could transfer to Erasmus High School. They went to see the principal, who asked Joe why he wanted to study Greek, and he simply said, "I'd like to study Greek," and the principal refused his transfer. On the way home Joe cried, and his father took him into town and bought him a Greek grammar and dictionary from a used bookstore. With those books, he taught himself Greek—in fact, that was the usual way he learned languages.

When Greenberg began college at Columbia University in 1932, he continued studying Latin and Greek and also taught himself Classical Arabic. He signed up for classes in obscure languages, such as Akkadian and various Slavic languages, annoying professors who thought they could get away without teaching by offering classes they thought nobody would take. He discovered comparative linguistics in his junior year and anthropology in his senior year. Also in his senior year he audited a class given by Franz Boas on American Indian languages and, on his own, read all the grammars in Boas's *Handbook of American Indian Languages* (Boas, 1911, 1922). Because of his Classical and Semitic background, Greenberg entertained the idea of becoming a medieval historian specializing in contacts between Christianity and Islam in Africa. But opportunities in the humanities were nonexistent during the Depression. His

anthropology professor, Alexander Lesser, suggested he apply for a Social Science Research Council Ph.D. grant to study under Melville Herskovits, a major Africanist at Northwestern University. Lesser obtained references for him from Boas and Ruth Benedict. Greenberg received the grant and studied with Herskovits at Northwestern. In his third year Greenberg did fieldwork among the Hausa in Nigeria (learning Hausa in the process), and wrote a dissertation on the influence of Islam on one of the few remaining non-Islamic Hausa groups.

Greenberg's intellectual interests continued to expand. Herskovits encouraged him to spend his second year at Yale (1937-1938), where he studied with the anthropologists Leslie Spier and Robert Lowie and the linguists Edgar Sturtevant and Franklin Edgerton. (He never met the linguist and anthropologist Edward Sapir, always Joe's hero; Sapir was ill at the time and died in 1940.) The linguistics courses were all on comparative Indo-European. It was not until he returned to Yale with a postdoctoral fellowship in 1940 that he made his acquaintance with American structuralism, auditing courses with Bernard Bloch, George L. Trager and Benjamin Lee Whorf, all leading structuralists. Greenberg also met Leonard Bloomfield, considered the founder of American structuralist linguistics, at around this time, though not at Yale. Bloomfield suggested to Greenberg that he read the analytical philosopher Rudolf Carnap and thereby introduced Greenberg to logical positivism. Greenberg studied Alfred North Whitehead and Bertrand Russell's *Principia Mathematica*, even taking it with him when he was drafted into the Army in 1940. Logical positivism had a significant influence on Greenberg, not only in the general rigor of its argumentation; he published axiomatizations of kinship systems and phonology.

Greenberg took the postdoctoral position at Yale because there were no academic positions in the Depression, especially for Jews. Being drafted into the Army in 1940 solved the employment problem for five years. Before he left for the war, he married Selma Berkowitz, whom he had met when she was finishing high school and he was starting at Columbia; she remained his companion and support for the rest of his life. Greenberg entered the Army Signal Corps and was eventually sent to North Africa, participating in the landing at Casablanca. In North Africa he and his colleagues got up in the middle of the night and deciphered the German or Italian code by the early morning. After the Allied invasion of Italy he was sent to Italy, where he remained until the end of the war—and where he learned Italian, of course.

Conditions for academic employment were completely different after World War II. The GI Bill offered funding for GIs to go to college, and universities expanded. This expansion continued as the postwar baby boom eventually made its way to college. Greenberg was appointed at the University of Minnesota in 1946 and moved to the anthropology department at Columbia University in 1948. The leading European structuralists Roman Jakobson and André Martinet, recent arrivals from Europe, had founded the Linguistic Circle of New York. Through them Greenberg was exposed to the structuralism of the Prague school, including Nicholas Trubetzkoy's work on markedness. (Greenberg also coedited *Word*, the journal of the Linguistic Circle of New York, from 1950 to 1954.)

Greenberg's intellectual roots included all of the major strands of linguistics, philosophy, and anthropology at the time: American structuralism, Prague-school structuralism, comparative historical linguistics, logical positivism, and cultural anthropology. (This is not to mention his Classical

and Semitic background, or his awesomely broad reading, which continued to the end of his life.) At the time, the first linguistics departments in America were being established, and Greenberg was in a position to help shape the field of linguistics. At that time, the field was still largely divided among philologists working on historical linguistics and anthropological field linguists working on "exotic" languages. Linguistics, chiefly in the form of structuralism, was still in the process of declaring its academic and intellectual independence from philology and anthropology. Greenberg made major contributions to the establishment of linguistics as an independent science.

Greenberg's first major work brought the young American linguist immediate fame and controversy. Greenberg's Ph.D. research was as an Africanist, and he turned his attention to African languages. His first large project was nothing if not ambitious: the genetic classification of the languages of Africa. After a preliminary publication in *American Anthropologist* in 1948, a complete classification was published in serialized form in the *Southwestern Journal of Anthropology* in 1949-1950. At the time, African languages were classified into five families: Semitic, Hamitic, Sudanic, Bantu, and Bushman (Newman, 1995, p. 3). Greenberg classified them instead into 16 families, on the basis of two fundamental principles.

His first principle is the exclusion of typological features from genetic classification. That is, properties purely of form (phonological patterns or grammatical patterns) or of meaning (semantic patterns) are too likely to diffuse, are too small in number, and are too likely to result from independent convergence to act as indicators of genetic descent. Instead, the arbitrary pairings of form and meaning in both morphology and lexicon provide the best evidence for genetic classification. This separation of typologi-

cal and genetic traits of languages provided the key to genetic classification, and almost as a by-product produced the independent development of typology a few years later in Greenberg's career. His second principle is the exclusion of nonlinguistic evidence from the establishment of linguistic genetic families. Both of these principles were violated by the accepted classifications of African languages. Typological traits, such as the presence or absence of gender, and nonlinguistic factors, such as race, played a role in the accepted classification.

Greenberg's proposals cut across the accepted classification but established the basic principles for genetic classification of languages. As a young American scholar he upset the senior British and German scholars in the field. Greenberg knew he was overthrowing established academic views, as is clear from the preliminary article in *American Anthropologist*, in which he fearlessly takes on the authorities in his field.

Greenberg did not stop at African language classification. He turned to the study of the languages of the Americas, Australia, and other parts of the world. While North American languages were at the time grouped into a small number of large families, South American languages were not, and so Greenberg began with South America, where he identified seven families. In Australia he identified one widespread family, which he called General Australian (identical to Pama-Nyungan), and a large number of small families. Some of these observations were published in "Historical Linguistics and Unwritten Languages" (1953). In response to criticisms of that paper and his other work, Greenberg explicitly formulated his third and final principle of genetic classification, namely the simultaneous comparison of the full range of languages and forms for the area under study (mass comparison, later called multilateral compari-

son). In 1955 Greenberg's African classification was reprinted, and he had consolidated the 16 families to 12. He continued his classification work, proposing 14 families for the non-Austronesian, non-Australian languages in Oceania, in a report to the Wenner-Gren Foundation in 1958.

Greenberg did not fully realize the ramifications of his method until, as he described it later, "One day, probably in early 1959, as I put my foot on the pavement to cross Amsterdam Avenue on my way to Columbia, an idea flashed before me. Why shouldn't I just look at all of my then twelve families in Africa together?" (Greenberg 1996a, p. 147). He did so. His final classification of African languages (1963) consists of four families: Afroasiatic, Khoisan, Niger-Kordofanian, and Nilo-Saharan. This classification has been broadly accepted but not until after a lengthy and heated debate. In this debate many of the British and German Africanists defended their typological and nonlinguistic classifications of African languages. A crucial number of mostly American Africanists accepted Greenberg's results and the method that he used. Other linguists, in particular Americanists and Indo-Europeanists, argued that only reconstruction of the protolanguage would "prove" the genetic classification of languages (see Croft, 2005a). Almost all of these arguments would recur from the late 1980s up to the present, as Greenberg's classifications in other parts of the world were published.

As a matter of fact, Greenberg's more controversial classifications of the languages of Oceania, the Americas and Eurasia were all arrived at by the early 1960s. Greenberg presented evidence in 1960 that the 14 families he identified in Oceania belong to a single group. In the same year, a paper originally presented in 1956 was published, proposing that the American Indian languages fall into three genetic groupings. (Interestingly, the linguists Sydney Lamb

and Morris Swadesh independently arrived at the same conclusion at about the same time.) In the course of his research on the American Indian languages, he compared them with languages in northern Eurasia and by the early 1960s had identified another large family ranging from Indo-European in the west to Eskimo-Aleut in the east. But Greenberg did not publish the evidence for these proposals until many years later, and for this reason I will return to the 1950s to take up the other strands of Greenberg's contributions to linguistics.

Much of Greenberg's earlier work is on African linguistics, and he was recognized early on as one of the leading African language scholars. (In fact, he was an unnerving presence at African language conferences, where he would sit in the front row and ask questions revealing his knowledge of virtually every African language that was the topic of a paper.) In addition to the classification of African languages, he wrote numerous articles on phonology and morphology, particularly in Afroasiatic, and on language contact in Africa. In "The Patterning of Root Morphemes in Semitic" (1950), Greenberg displayed his characteristic thorough, quantitative approach to a linguistic problem. He examined 3775 Arabic triliteral roots and surveyed roots in other Semitic languages in order to formulate a number of constraints on the occurrence of phonemes and phonological features across the root consonants of Semitic. The article also displays his breadth of knowledge of the literature and citation of antecedents and parallel discovery. It is a pathbreaking work, one that has been repeatedly cited in later research on morpheme structure conditions and phonotactic constraints.

Greenberg described himself as being in a state of intellectual ferment, or even crisis, from 1952 to 1954 (Greenberg, 1994, p. 23). Although not formally trained as

a linguist, he had been influenced by American structuralism and its seeming philosophical counterpart, logical postivism. Yet he had recognized some of structuralism's weaknesses, partly through influences such as the Prague School and comparative-historical linguistics (which had much greater prestige then than now). In particular, he questioned American structuralism's lack of interest in meaning and use, the strict separation of synchrony and diachrony, and the methods for uncovering basic linguistic units such as the phoneme.

Greenberg recalled another formative experience that occurred in 1953. He was part of an interdisciplinary seminar on linguistics and psychology organized by the Social Science Research Council. He presented the current state of linguistics, that is, the rigorous methodology of American structuralism, about which he already had misgivings. The psychologist Charles Osgood told Greenberg that that was quite impressive, but that if Greenberg could tell him something true of all languages, then psychologists would be interested. Greenberg later said that "this remark . . . brought home to me the realization that all of contemporary American linguistics consisted of elaborate but essentially descriptive procedures" and that Osgood's question "helped determine the direction of much of my future work" (Greenberg, 1986, pp. 13-14). Greenberg then turned to the problem of universals of language.

It would be four years, however, before Greenberg published his first paper on language universals. Instead, his next major publication in synchronic theory was in the area of typology (1954,1). At that time typology was the study of language differences, not similarities, based on phonological and morphological traits. The morphological typology of the 19th century, dividing languages into isolating, agglutinative, and inflectional types, was the only major typo-

logical classification of languages until Trubetzkoy's work on phonological systems. The morphological typology had been refined and elaborated by Edward Sapir, Joe's linguistic hero. Greenberg's essay was a refinement and quantification of Sapir's typology, accompanied by an insightful analysis of the fundamental segmentation of utterances into words and morphemes.

But Greenberg's interest was chiefly in universals. In 1954 he also published a paper on linguistic relativity (1954,2), in which he expressed skepticism about relativistic claims. (Joe told me that the editor of the volume invited him, expecting to receive an article supporting relativity, and instead received a rather unexpected contribution.) In 1957 Greenberg published his first paper on language universals, the last essay in his volume *Essays in Linguistics* (1957). (This collection also contains Greenberg's classic articles on language classification.) The last essay contains the germs of Greenberg's future work on language universals. Greenberg establishes the basic principle that universals must represent generalizations over historically independent cases of the phenomenon to be studied, and makes the first link between typology as practiced then and language universals. It is this link that represents Greenberg's great insight into the study of grammar. He notes that there are very few unrestricted universals of the form "All languages have X," and those that exist are not terribly interesting. Instead, the search for universals must focus on the distribution of types found in languages, that is, significant universals are to be found in constraints on crosslinguistic variation not in crosslinguistic uniformity. Greenberg also asserts that such universals "require some explanation, one which inevitably takes into account functional, psychological and social factors underlying all language behavior" (1957,

p. 86)—an early statement of what has come to be called the functionalist approach to language.

The following year (1958-1959) Greenberg was invited as a fellow to the Center for the Advanced Study in the Behavioral Sciences at Stanford, along with Osgood and James Jenkins, the psychologists with whom he collaborated. It was an exciting year at the center: Next door to Greenberg the philosopher of science Thomas Kuhn was writing *The Structure of Scientific Revolutions*, and the philosopher W. V. O. Quine was writing *Word and Object*. Greenberg himself was working on language universals and planning a conference with Osgood and Jenkins, which was held at Dobbs Ferry in 1961.

At the Dobbs Ferry conference Greenberg first presented what became his most famous and far-reaching contribution to linguistics: "Some universals of grammar with particular reference to the order of meaningful elements." The same paper was presented in the following year at the Ninth International Congress of Linguists at MIT (where Noam Chomsky also presented his ideas to an international audience for the first time), and then published in 1963 along with the other Dobbs Ferry papers (1963, 1966). This paper remains one of the most widely cited papers in linguistics.

In this paper Greenberg goes beyond his 1957 essay to represent universals in logical form, namely, as implicational universals ("If a language has X, then it also has Y") and biconditional universals ("a language has X if and only if it also has Y"). He constructs an areally and genetically diverse sample of 30 languages in order to infer empirically valid universals, arguing that grammatical categories must be compared across languages on an ultimately external, semantic basis. He then applied this method to word order and morphological categories, constructing a total of 45

universals. In the concluding section Greenberg offers more general principles to account for the word order universals. In other words, Greenberg's paper establishes the basic methodology of what is now known as the typological approach to grammar, derives major empirical results, and offers a type of explanation used widely to this day in typological analyses.

The impact of Greenberg's paper was dramatic. At the time, the field of linguistics was also being challenged by Noam Chomsky. Chomsky argued that linguistics should focus its attention on syntax, rather than just phonology and morphology as the American and European structuralists were doing up to that time. Chomsky also argued that linguists should seek language universals, and contrary to the beliefs of many American structuralists, that there are significant language universals to be discovered. Chomsky sought language universals through deductive reasoning in the analysis of individual languages into their "deep structure" and transformations of that deep structure into surface structure.

At the same time, Greenberg produced a large number of substantive universals of syntax, derived by inductive empirical generalization over "surface" structure across a wide range of languages. Some of Chomsky's disciples immediately incorporated word order typology (e.g., McCawley, 1970). But the fact remains that Chomsky and Greenberg at about the same time proposed opposing theories about universals of grammar (particularly syntax), how they are to be defined and discovered, and how they are to be explained. These later became known as the Chomskyan and Greenbergian approaches to language universals, and still later characterized more broadly as the formalist and functionalist approaches to language (though in fact the latter labels encompass a broader range of theories than their

historical founders would accept, and embrace theories that precede both of them). The formalist and functionalist approaches are the leading approaches to the study of language today.

During the 1960s, however, despite the great interest in his word order universals, Greenberg worked largely alone, while Chomsky's generative grammar came to dominate the American linguistic scene. This was partly due to institutional arrangements. In 1962 Greenberg moved from Columbia to the department of anthropology at Stanford University. Stanford had only a committee on linguistics at the time, and as a result Greenberg had very few graduate students. Greenberg was instrumental in establishing a department of linguistics at Stanford in 1973. In 1967 Greenberg and his colleague Charles Ferguson received a National Science Foundation grant for research into language universals that lasted until 1976. As a result, Greenberg and Ferguson were able to fund research by many postdoctoral fellows, including major figures in the next generation of typologists, such as Talmy Givón, Leonard Talmy, and Edith Moravcsik. This project resulted in a series of 20 Working Papers in Language Universals and the four-volume *Universals of Human Language* (Greenberg et al., 1978).

Greenberg himself produced a number of important studies of language universals during this time, on consonant clusters, glottalic consonants (1970, often cited), word prosodic systems and numeral systems, not to mention numerous general essays on typology and universals (especially 1974). The most influential synchronic study, after his word order research, is his article on universals of markedness and markedness hierarchies (1966). The theoretical concept of markedness was developed by the Prague School of European structuralism. Greenberg was first exposed to the Prague School's ideas during his early years

teaching at Columbia. In Prague School theory, however, markedness is a property of language-specific grammatical categories, and the markedness of a category, such as "singular," can vary from language to language. Greenberg reinterpreted markedness as a property of crosslinguistic categories, that is, conceptual categories, so that for instance it is a universal that the singular is unmarked compared with the plural. Greenberg constructed a series of universals of formal expression based on markedness relations, and also argued that the morphological (though not phonological) universals are ultimately explainable in terms of token frequency. Again, Greenberg's work anticipates later developments in functionalist linguistic theory, now described as the usage-based model.

Greenberg's theoretical interests were taking a new turn as early as the 1960s. He began to explore diachronic typology, that is, universals of language change as well as universals of synchronic language structure. Greenberg was no doubt also inspired by his extensive comparative-historical research in Africa and in other parts of the world. He realized that the constraints on patterns of crosslinguistic variation are ultimately constraints on paths of change of language, and so synchronic typology can and should be reanalyzed as diachronic typology. His first full statement of diachronic typology is found in his lectures from the Linguistic Society of America Summer Institute at the University of Californa at Los Angeles in 1966, published as "Some Methods of Dynamic Comparison in Linguistics" (1969). Greenberg demonstrates how synchronic typologies can be reinterpreted as diachronic ones, how comparative-historical studies can be used to develop hypotheses of universals of language change, and proposes a model for the representation of diachronic patterns. Greenberg's diachronic approach to language is presented more generally in his

Linguistic Society of America Presidential Address, "Rethinking Linguistics Diachronically" (1979).

Greenberg also published many studies of universals of language change. In addition to case studies from the Summer Institute lectures, he published papers on numeral constructions (e.g., 1972, 1977), gender markers (in 1978), word order, and pronouns. Of these the study on gender markers helped to stimulate the tremendous explosion of research on grammaticalization, which is the chief area of research in diachronic typology today. In a later paper (1991) Greenberg proposes a further process, regrammaticalization, by which a highly grammaticalized marker is employed in other grammatical functions, for example, a noun marker is employed as a verbal nominalizer. This process is identical to Lass's independently proposed mechanism of exaptation (Lass, 1990).

It is now de rigueur for typological studies to examine diachronic as well as synchronic universals. There is now much discussion of emergence in grammar and of the dynamic usage-based model in the functional-typological approach, and some of the linguists working in this area, including the late Keith Denning, Suzanne Kemmer, and myself, were part of a group of graduate students that worked with Greenberg around the time that he retired from Stanford. Nevertheless, it is accurate to say that the consequences of Greenberg's rethinking linguistics diachronically have yet to have their full impact in the intellectual development of linguistics.

But Greenberg's interest in genetic classification of languages never left him. From the beginning of his research on language universals to the end of his life, Greenberg argued that a prerequisite for typological research, synchronic as well as diachronic, is the establishment of the genetic classification of languages. One must know how closely lan-

guages are related in constructing proper language samples, and the establishment of genetic families allows the diachronic typologist to identify and compare grammaticalization processes in different language families. Greenberg's interest in the topic of language classification did not cease during the 1960s and 1970s, when most of his attention was focused on typology and universals. As was noted above, Greenberg had already identified the major families of Oceania, Eurasia, and the Americas by the early 1960s. However, he did not begin to publish the results of this research until later.

The first new publication on language classification outside Africa was "The Indo-Pacific Hypothesis" (1971,1). Between 1960 and 1970 Greenberg gathered all of the material then published on Indo-Pacific languages and was able to examine some unpublished data as well. He organized the data in 12 notebooks of 60-80 languages each, with up to 350 lexical entries for each language, and also made detailed grammatical comparisons in three further notebooks. To check against the possibility of borrowing from Austronesian, Greenberg prepared vocabularies of similar length for 50 Austronesian languages, particularly those in proximity to Indo-Pacific languages. Both lexical and grammatical evidence were presented, as with the African classification. Indo-Pacific contains the 14 subgroups originally identified in 1958, which were further divided into subsubgroups. There were a handful of small groups and isolates that Greenberg identified as Indo-Pacific but was not able to assign to specific subgroups. The article concluded with proposals for the internal grouping of the 14 subgroups.

Greenberg's Indo-Pacific hypothesis met a different fate from his African hypothesis, which had become accepted by this time. After a few initial reactions—some positive

and others negative—Greenberg's hypothesis was largely ignored (see Croft, 2005a,b).

Greenberg did not publish anything further on Indo-Pacific. Instead, he returned to his three-way classification of the languages of the Americas into Eskimo-Aleut, Na-Dene, and Amerind. Over nearly three decades Greenberg assembled 23 notebooks of around 80 languages each, with up to 400 lexical entries for each language, and six additional notebooks with grammatical comparisons. In 1987, one year after retiring from Stanford University, Greenberg published *Language in the Americas* (1987). In it he presented evidence, again both lexical and grammatical, for 11 subgroups of Amerind and for Amerind itself. He did not present evidence for Eskimo-Aleut (that being accepted), and presented only a response to an attack on Sapir's Na-Dene family. The book begins with a general defense of his method and a critique of the comparative method, and concludes with a suggestion that all of the contemporary languages of the world may form a valid genetic unit (the monogenesis hypothesis).

Greenberg's Amerind hypothesis, although anticipated by others, met yet another fate from this African and Indo-Pacific hypotheses. Between the 1950s when Greenberg proposed his African classification and the 1980s when he published his classification of the languages of the Americas, historical linguistic research moved away from establishing new genetic families. In fact, historical linguists engaged in deconstructing previously accepted language families, such as Sapir's Hokan and Penutian families in North America, or the Altaic family (Turkic, Mongolian, Tungusic) in Eurasia. In this atmosphere Greenberg's proposal that all of the languages of the Americas except Eskimo-Aleut and Na-Dene form a valid genetic grouping was vehemently rejected. Greenberg's proposal launched a debate—which has

not yet ended—about the validity of the hypothesis and Greenberg's methods of linguistic genetic classification.

Greenberg participated vigorously in this debate, contributing some 20 responses, replies, commentaries, and reviews of his critics. He consistently maintained his position on his genetic classifications. He argued that a quantitative probabilistic argument is required to "prove" an empirical scientific hypothesis, in response to the historical linguists who argued that reconstruction of the protolanguage was necessary. Greenberg further argued that, in fact, his method necessarily precedes reconstruction, since reconstruction presupposes a classification He noted that he used the same methods for linguistic genetic classification in the Americas as he did in Africa, now generally accepted, and that this method was the same used to identify the now-accepted language families in the 18th and 19th centuries. Finally, he argued that alternative, nongenetic hypotheses for the widespread similarities in form and meaning in words and grammatical elements across languages, such as extensive language mixing, extensive borrowing of basic vocabulary and grammatical inflections, or sound symbolism, were either sociolinguistically implausible or not persuasively supported by attested sociohistorical developments in shallower, widely accepted language families.

Another controversial aspect of Greenberg's Amerind hypothesis was the support it received from physical anthropology and from genetics. Stephen Zegura and Christy Turner independently hypothesized a three-migration pattern into the Americas based on dentition and genetic evidence; the three of them published their results together (1986). In addition, the geneticist Luigi Luca Cavalli-Sforza compared genetic groupings of humans and Greenberg's linguistic classification, and found a high degree of similarity (Cavalli-Sforza et al., 1988; see also Greenberg, 1996b),

which led to further controversy. Greenberg was of course encouraged by this convergence of independent evidence, but he always insisted that the linguistic classification must be established on linguistic evidence alone.

Greenberg continued to publish on diachronic, typological, and other topics, but the main focus of his research after his retirement from Stanford was genetic classification. His next area of study was Eurasia. He continued to gather lexical and grammatical evidence for a family he called Eurasiatic, consisting of Indo-European, Uralic, Altaic, Korean-Japanese-Ainu, Gilyak, Chukchi-Kamchatkan, and Eskimo-Aleut. Although many scholars had compared pairs of families (e.g., Indo-European and Uralic, Uralic and Altaic, Altaic and Japanese), Greenberg argued that all of the aforementioned groups together constitute a valid genetic unit. He published a number of articles presenting parts of this evidence, and eventually included 72 independent pieces of grammatical evidence in a monograph, *Indo-European and Its Closest Relatives: The Eurasiatic Language Family*, vol. 1, *Grammar* (2000,1).

Although Greenberg did not know at the time that he had only two years to live, at the age of 84 he proceeded to write the second volume (the lexical evidence) at a frantic pace. "I am fighting against time to get the second volume finished," he wrote me in January 2000. He submitted the final etymologies to Merritt Ruhlen for typing on October 27, 2000, and went into the hospital that evening. He was diagnosed with pancreatic cancer, and stayed home with his wife, Selma, from then until his death. But he worked until mid-March 2001 with Ruhlen on finalizing the lexical evidence.

Up to the last month of his life Joe was still incredibly active. Even in my last conversation with him, a week before he died, he could joke that he could have written five

papers in the months since he had been diagnosed. Joe didn't want to stop. He wanted to pursue the classification of languages all the way up to the human language family, which he thought possible; and of course there were all those fascinating processes of language change that he encountered on the way. He planned to turn next to a southern group consisting most likely of Niger-Kordofanian, Nilo-Saharan, Elamo-Dravidian, Indo-Pacific, and Australian. He retrieved his old notebooks but realized that he needed more sources and did not have the time and energy to proceed. Fortunately, Joe also recognized that he had lived as full a scholarly life as one could ask for and that his published work (including the work to appear after his death) would leave a legacy that would extend far into the future.

During his long life Greenberg received many accolades: twice fellow at the Center for Advanced Study of the Behavioral Sciences, thrice Guggenheim fellow, elected to the American Philosophical Society and the National Academy of Sciences (in 1965), president of the Linguistic Society of America, the African Studies Association, the West African Linguistic Association, and the Linguistic Society of America Collitz Professor. Greenberg gave the first Distinguished Lecture of the American Anthropological Association, and received the Haile Selassie Award for African Research, the New York Academy of Sciences Award in Behavioral Science, and the American Academy of Arts and Sciences Talcott Parsons Prize in Social Science. Stanford University planned a conference to honor Greenberg, "Global Perspectives on Human Language," which Joe hoped to take part in, but sadly it became a conference in his memory in April 2002.

Despite the controversial positions he took from the beginning of his career to the end, and the stature he gained in the field, Joe Greenberg was one of the most mild-man-

nered and self-effacing scholars imaginable. He was unbelievably modest and unassuming for such a brilliant scientist. The reason, I believe, was that he always had a completely genuine curiosity and wonder at language and, indeed, at everything in the world. He also had an unpretentious, down-to-earth way of talking about languages—reinforced by his thick Brooklyn accent, no doubt, and the equally down-to-earth similes he used. He once said, "A speaker is like a lousy auto mechanic: Every time he fixes something in the language, he screws up something else." Another memorable remark came when Joe revived his typology class in the fall of 1984, while I was still a graduate student at Stanford. One day Joe was describing some interesting fact about a language, and he suddenly stopped and said, "You know, you gotta muck around in grammars. You can't just focus on one specific thing and pick it out. You read around and you discover things you never would have thought of."

Joe was a completely independent intellectual spirit. He was not so much an iconoclast as someone who considered nothing above questioning or beneath consideration. He absorbed comparative historical linguistics from Bloomfield, Sturtevant, and Edgerton, but did not let its strictures about reconstruction prevent him from pursuing genetic linguistic classification. He learned American structuralism from Bloch, Trager, and Whorf, but did not accept their ban on meaning nor their antiuniversalist stance. He continued his typological approach to universals, developed at the same time as generative grammar, while the rest of American linguistics fell under Chomsky's spell.

Joe sometimes attributed his independence to the fact that he didn't study linguistics in a linguistics department. But Joe was deeply knowledgeable about the history of linguistics. (I never had the opportunity to take the history of linguistics from him, but he told me that he usually got to

around the Renaissance by the end of the course.) He could quote freely from the great 19th-century German historical linguists; but he also followed developments in contemporary linguistic theories and, of course, read the specialist language journals. In fact, most of Joe's learning came from reading: logic, philosophy, languages, linguistics, anthropology, history, culture, biology, and so on. Joe lamented to me that students no longer received the broad humanistic education that he did—but he largely gave that education to himself.

Joe was the scholar's scholar. His office was Green Library at Stanford, where he worked all day six days a week, always reading and making notes in pencil in his famous notebooks. The library staff one day surprised him by installing a brass plaque on the oak reading table where he worked, inscribed "The Joseph H. Greenberg Research Table." Joe's erudition was awesome, but he wore it lightly. He could recall obscure facts about languages anywhere in the world, though in later years he said, "Every time I learn the name of a new student, a fact about Nilo-Saharan flies out of my head."

Although his mind was as sharp as ever, age did slow Joe down. He no longer scampered down the stairs from his office. He shuffled ever more slowly from home to Green Library and back. He even stopped working in the library on Saturdays in the last decade of his life, going in "only" five days a week, and stopped working at home at night (!). In his seventies he was unhappy that he would read a grammar of a language and not remember everything in it. He complained that he shouldn't have waited until the age of 65 to start learning Japanese, but at 85 admitted he could read an Ainu-Japanese dictionary without that much difficulty. When he reviewed his African notebooks at the end

of life, over four decades after he wrote them, he was disappointed that he couldn't remember the specific word forms.

"I learned more from languages than from linguists," Joe used to say. He was first and foremost an empirical scientist of language. Both his controversial work on language universals and his even more controversial work on genetic classification were based on the same method: a nearly exhaustive examination of all the linguistic data he could get his hands on. His language universals and genetic classification—dramatic and far beyond what anyone else had done as they are—were always presented as provisional and subject to revision.

Joe was also a very kind-hearted and generous soul. He always lent me his notebooks, even the notebook on which his famous word order paper was based. He lent his Indo-Pacific notebooks to a student who wanted to reanalyze his classification; fortunately, they were returned. Joe was also remarkably cheerful, although he was very hurt by the numerous ad hominem attacks on his Amerind classification by the various political machinations in the Stanford linguistics and anthropology departments and by the premature death of his last student, Keith Denning, in 1998. After Joe was diagnosed with cancer he told me he was depressed and added that it was the first time in his life that he had felt depressed. He was devoted to his wife, Selma, to whom he was married for over 60 years, and who was his greatest support throughout his extraordinary career. Selma outlived Joe by over five years; she died in Palo Alto, California on January 28, 2007.

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