

## An Interview with George Lakoff

FRANCISCO JOSÉ RUIZ DE MENDOZA IBÁÑEZ  
Universidad de La Rioja  
C/Cigüeña, 60  
Logroño - 26004

### BIOGRAPHICAL NOTE

George Lakoff teaches linguistics and cognitive science at the University of California, Berkeley. Together with such figures as James McCawley, Paul Postal, and Haj Ross, he was one of the founders of the Generative Semantics movement in the 1960's. This represented the earliest major **departure** from the standard Chomskyan Generative Transformational **Grammar** by demonstrating the fundamental role played by semantics and pragmatics **in grammar**. Since the mid-1970's Lakoff has **become** a leading figure in the development of Cognitive **Linguistics**, which grounds linguistic theory in empirical findings from the **field** of Cognitive Psychology. He has studied conceptual systems in depth, although the bulk of his most recent research has increasingly focused on metaphor and its consequences for abstract **reasoning**.

He is the author of *Women, Fire, and Dangerous Things*, and co-author of *Metaphors We Live By* (with Mark Johnson), and *More Than Cool Reason* (with Mark Turner). His most recent book, *Moral Politics: What Conservatives Know That Liberals Don't*, analyses the language of political discourse and **demonstrates** that conservative and liberal ideas are based on opposite metaphorical models of the **family** and morality. At present, he is writing *Philosophy in the Flesh*, in collaboration with Mark Johnson, which **interprets** philosophy from the point of view of cognitive science. He is **also working**, with Rafael Núñez, on the metaphorical **structure** of mathematics.

### INTERVIEW'

*Good afternoon, Professor Lakoff. First of all, I'd like to go back to the late 1960's and early 1970's. This is the period of Generative Semantics for you and a number of other people, like Paul Postal, Haj Ross, and James McCawley, who had been studying with*

*Chomsky. What are your recollections from that period? What was going on?*

A lot was going on. Generative Semantics started forming as early as 1963. At the time I was just a **first** year graduate student and I had previously done work on **the** structure of discourse. I had done an undergraduate **thesis** which was the **first story** grammar. I had tried to put a narrative structure into a transformational framework, and in doing so, it occurred to me that one could possibly **generate** whole **stories**, starting with plot structure and working down to sentences.

But in **order** to do that I had to **have** a semantic base for the sentences, since the plot structure I proposed was given in semantic **terms**. At that time semantics meant logic, mainly the traditional formal logic. **And** so I asked if it was **possible** to **have** logical forms be underlying structures in a transformational grammar. I **figured** out how to **restructure** logical forms so that they would fit transformational rules. Technically, it might be possible. The question was whether there was any independent empirical evidence from **syntax** that this was the right thing and to do. I set out to get such evidence.

I conceived the following idea. **Look** at the properties of logical forms. There are **seven** basic properties:

- (1) predicate-argument structure;
- (2) scope differences;
- (3) **co-reference**, that is, identical variables;
- (4) binding of variables by quantifiers;
- (5) propositional function structure (where one or more variable is **unfilled**);
- (6) inferences, and
- (7) sublexical structure.

The question I asked back in 1963 was: Do **these** properties of logical forms, most of them structural (except for inferences), show up in **grammar**? Then I went looking for evidence.

The first evidence I noticed concerned prelexical structure. I looked at causative sentences like, *He warmed the milk*, where you **have something** like "he caused the milk to **become** warm". I argued that, in **order** to state the **proper generalizations** about (1) the distribution of the word "**warm**" and (2) the **relationship between** the causative, the inchoative, and the stative **constructions**, one would **have** to posit underlying structures, that is, logical forms, in **which** there was an abstract causative predicate and an abstract inchoative predicate. Such **analyses have** now **become commonplace**.

I also looked at **some** sentences from baseball - I was an avid baseball fan at the time. I still am. The sentence I chose was about a Boston Red Sox player **named** Carl Yastremsky (who was a young player back in 1963, but now is in the Hall Of **Fame**). The example was: *Yastremsky doubled off the wall*, where what went "off the wall" was the ball. The generalization about where directional **phrases** like "off the wall" occur depends on looking at the meaning of the verb "doubled." You **have** to **know** that "double" means to hit a ball so that you run for two bases. "Off the wall" **expresses** where the ball goes; it **requires** a theme that is a moving **entity**. Its syntactic occurrence, therefore, depends in part on the semantics of the verb in the sentence it occurs in.

One could not say, for example, *\*Yastremsky slept off the wall*, **because** there would be

nothing moving off the wall. Similarly, in *Yastremsky doubled to left field*, the ball went to *left field*. You can't say *\*Yastremski stood to left field* because there is nothing going to left field. I argued that, to state the generalizations governing the distribution of such adverbs, one had to postulate abstract underlying logical forms that represented meanings.

That was in 1963. I wrote "Toward Generative Semantics" for a summer research project where I was working with Gil Harman and Jim McCawley, who were then graduate students. That summer, Harman wrote the first paper showing that phrase structure grammars could do everything transformational grammars of a reasonable sort could do (almost 15 years before Gazdar showed the same thing). McCawley was working on phonology. We became friends and I gave him one of the 20 copies I made of the paper. I had met Paul Postal and I also gave him a copy of the paper. And I gave Haj Ross a copy of the paper. Chomsky hated it. He thought the idea of logical form in grammar was ridiculous.

*But he later adopted the idea, or didn't he?*

He later adopted it, but at first he was dismissive. He thought it was stupid.

*Why?*

I don't really know. Paul Postal suggested that this was because I suggested this before Chomsky's *Aspects* theory -this was '63. Chomsky's *Aspects* theory was formulated in '64 and published in '65. Postal knew that the *Aspects* theory was being developed and he suggested that, if I waited, then there might be a Chomskyan framework in which to frame my ideas. So I didn't push Generative Semantics right away.

I waited, but meanwhile I looked for more evidence that logical form occurred in grammar. McCawley, Ross, Postal, and I found a great deal of evidence. Consider, for example, evidence for propositional functions. We looked at sentences like *The children are ready to eat and so are the chickens*. On Chomsky's account at that time, the sentence should be four ways ambiguous; that is, *the children are ready to eat* or *be eaten*, and *the chickens are ready to eat* or *be eaten*. But the sentence is actually only two ways ambiguous. That was explained by Jim McCawley, who suggested that the sentence was formed not simply by verb phrase deletion; rather, what occurred was the deletion of a verb phrase paired with its propositional function; if you included the semantics of the verb phrase as well as the syntactic form in the rule of verb phrase deletion, then identical propositional functions would be involved. McCawley's proposal was later decisively demonstrated by Ivan Sag in his dissertation, in a very different framework, about ten years after that.

Then there were other kinds of examples. For example, in Logical Form, a negative is outside of the proposition it negates. The question I asked was: Are there any sentences that indicate that the underlying syntactic structure of negative sentences has a propositional-external negative in it underlying syntactic structure? We found some sentences that indicated that. For example, *John didn't marry Mary although the fortune teller had predicted it*, where the "it" indicates that he *did* marry Mary, and has to refer to a proposition inside the scope of the negative. That is, the negative has to be seen as outside the scope of the sentence as you would have it in Logical Form.

That was another bit of evidence that Logical Form could show up in grammar. I looked at tense logics, where the tense is usually outside of the proposition. In tense logic,

a sentence like *John left* contains the proposition "John leaves", which is **true** in the past. The past tense is an operator **outside** of "John leaves". We found sentences like the *Republicans won in 1968 but it won't happen in 1972*, where the "it" refers to the "Republicans win", without a tense. That means you **have** to be able to isolate the constituent "Republicans win" from the tense, which means that the "it" must **have** as its antecedent a proposition completely inside the scope of the past tense operator, as in tense logic.

*Would Chomsky have been able to handle that kind of example?*

He never looked at them so **far** as **I** know, and he refused to discuss them with us, and to this day **I** don't know if he has looked at them. He refused to talk to us when we started discussing these examples so **I** simply don't know if he has thought about them at all.

*Following the line of discussion we are having right now, would you like to outline briefly your own evolution from being a Generative Semanticist up to your present work on metaphor?*

Well, what happened was **this**. In 1974 **I** discovered a class of sentences that showed that there could not be single underlying syntactic structures, whether they were logical forms or not. They were examples that could not be handled by any **transformational** theory, or any theory with syntactic derivations. Not only was Chomskyan transformational grammar inadequate, but Generative Semantics was as well: Generative Semantics could not work **because** both the logic and transformational grammar weren't adequate.

The sentences were called syntactic amalgams, and let me give you an example of one of two or three types. **Take** the sentence *John invited you'll never guess how many people to the party*. These sentences were brought to my attention by Haj Ross, who heard them from Avery Andrews when he was a graduate student at MIT. To handle this sentence, Andrews had postulated a very strange transformation. He said that *John invited you'll never guess how many people to the party*, was to be derived transformationally from *You'll never guess how many people John invited to the party*. He observed that the only way you could do it would be to move "John invited to the party" to the front of the sentence and then stick "you'll never guess how many" into the middle in exactly the right spot.

That seemed to me like a very **unlikely** transformation. But in order to **prove** that it couldn't work that way you **had** to show that you could **have** more **than** one **in** a given sentence, **because** on his **analysis** you would only be able to **have** one such higher sentence to put into the middle of the sentence. So **I** tried constructing sentences with multiple cases. It wasn't hard. **I** wound up **constructing** sentences with as many as **six** **in** the middle. **Here's** one with four: *John invited you'll never guess how many people to you can imagine what kind of a party, for God knows what reason on wasn't it last Saturday?*. That sentence has no single Logical Form or underlying **structure**, and **it** has no single transformational derivation. The reason is that, if it were to be derived transformationally, the topmost clause in the surface form would **have** to be embedded in logical form **in all** the other clauses at once. It just cannot be done **technically**. It occurred to me that you needed a very different notion of grammar, **something** like contemporary Construction Grammar or Cognitive Grammar, in order to account for sentences like this.

That was the beginning of my interest in construction-based grammars, back in 1974.

Then in 1975 I got a small grant from the National Science Foundation to **have** a Summer **Seminar** of eight people on linguistics, logic, and artificial Intelligence. I wanted to see how logic and artificial intelligence **entered** into the study of grammar and I invited **some** remarkable people like David Lewis, **Lauri Karttunen**, **Terry Winograd**, and so on. The word went out **through** the linguistics underground that we were having this **seminar**. Many people asked if they could just come and **join**, and I said yes, and before I knew it 188 people had decided to come to Berkeley. I hired a graduate student at MIT —**Ivan Sag**, now a distinguished professor at Stanford— as my research assistant. He set up **communes** in fraternity houses for anyone who came. He managed to house over 180 linguists **here** for 6 weeks for what **became** an underground **summer** institute. We had no official courses and no official teachers. What we did was set up a schedule of **lectures** from 10 in the **morning** to 10 at night **in** various rooms around the university, for 6 days a week, with the rule that anyone could **lecture** with 3 days' notice. Anyone who came and wanted to talk could simply talk. You just had to give us three days' notice to put you on the schedule. There were an enormous number of very interesting **lectures** that summer and among these **lectures** where **lectures** that convinced me that formal logic could not work for semantics at **all**.

Let me give you **some** examples of the people who **lectured** that summer. One of the first was Paul Kay. He presented results that he, Brent Berlin, and Chad **McDaniel** had **gotten** on the **universals** of color terms, and he explained these results on the basis of studies of the neurophysiology of color vision that was **being** done in the Psychology Department **here** by Russ DeValois. What Kay and his co-workers had **observed** in their color research was that the central members of colors were the same **all** over the world, even though the boundaries of the categories were different. Moreover that there is a hierarchy of colors constraining how new basic color terms get **introduced** into a language over time. What they showed was that the hierarchy and the centrality of the colors was predictable from the neurophysiology.

When I heard this **lecture**, I was still a believer **in** formal logic and model theoretic semantics. But I knew enough about the **technical** foundations of those fields to understand that this was a counterexample to my **enterprise** of what I had called "natural logic," the attempt to extend formal logic to **deal** with natural language semantics. The reason is this:

Model-theoretic semantics **characterizes meaning** in terms of reference and **truth** conditions. To get the meaning of a sentence, you **have** to relate symbols in the **Logical Form** to things in the world, or **some** set-theoretical model of the world. The mind and the brain are **not** in any formal model. Formal models are supposedly set-theoretical models of the **external world**. The **assumption** is that **meaning** is public, that the world has an objective structure, and that **all meanings** can be given **in** terms of the objective **structure** of the **external world**, with no reference to the mind or brain.

For example, to get the meaning of a sentence like *The chair is red* in formal semantics, you **have** to **assume** that there is a set of red **things** objectively out there **in** the world; the meaning of "red" is given by designating that **set**. The sentence *The chair is red* is true if and **only is** the object designated by "the chair" is in the set of red things **in** the objective **external world**.

What Kay and McDaniel together with DeValois and his co-workers had shown was that there is no such **thing** as a set of red things in the world. Red is created by the color **cones** in your retina and by the neural **circuitry** of your brain given certain conditions **in** the world. But the category red isn't in the world. What you see as red is not strictly a matter

of wave length. It depends on color conditions and **all** kinds of other local physical phenomena; given that, the category is created by your eye and your brain by the fact that you **have three types** of color cones and there are certain kinds of neural circuitry. That means that model-theoretical semantics for natural language cannot work for the meaning of color terms like "red." Since Generative Semantics used **model-theoretic** semantics, there was something fundamentally wrong with Generative Semantics as well. If logic didn't work, Generative Semantics couldn't.

The next week I heard a **lecture** by Eleanor Rosch. It was one of her first **lectures** on **basic-level** categories. She was reporting on her new research. What that research had shown was that certain categories were psychologically basic, like "chair" as opposed to "furniture", or "rocking chair". What she meant by 'psychologically basic' was that "chair" was defined partly by mental images —you can get a mental **image** of a chair but not of a piece of furniture— and partly by motor programs and body movements. You **have** motor programs for sitting down in a chair but you **have** no motor programs for interacting generally with a piece of furniture.

What she showed was that this very basic level, which is the level learned first by children, seems to be the optimal level at which people interact with the world with their bodies. That level of categorization, with its special properties, is determined not by anything out in the world but in part by your body and your perceptual system. In short, the conceptual category chair has properties not in the **objective external** world, but rather determined by the body and brain. **Basic-level** categories, like color categories, cannot be handled by model theory, **because** there is no body in model theory. There is no brain or perceptual system in model theory. Again, formal logic didn't work for natural language semantics.

The next important talk I heard in the **summer** of 1975 was Chuck Fillmore's first talk on Frame Semantics, **in** which he discussed semantic fields like "buy", "sell", "cost", "price". He showed that their semantic relationships were determined by holistic structures, like Schankian scripts or scenarios. A word like "buy" or "sell" presupposes a script in which you **have** elements like a buyer, a seller, goods and money. At first the seller has the goods and the buyer has the money, the seller wants the money and the buyer wants the goods. **In** the second part of the scenario, they exchange goods and money, and **in** the third part the buyer has the goods and the seller has the money.

Once you see that you can see the meaning of the words is defined **relative** to this kind of structure —**and Fillmore** gave many, many examples in which the meaning of words requires structures of this **sort**. But the **structures** are not **objectively** out there in the world. **In** fact, sometimes there are alternative frame structures which are inconsistent with one another.

For **instance**, the words "thrifty" and "stingy". The word "thrifty" is defined with respect to a frame in which you are concerned about the efficient use of resources, and **in** that frame the opposite of "thrifty" is "wasteful". A sentence like *He is not thrifty, he is wasteful* makes sense **relative** to such a frame, where the issue is the use of resources.

Now **take** a word like "stingy", whose opposite is "generous". The frame with **how** badly someone wants to keep his money for himself, versus and how much he **is** willing to give it to somebody **else**. In a sentence like *He is not stingy, he is generous*, you are using that frame.

Now consider the sentence *He is not thrifty, he is stingy*. What I'm doing **in** this sentence

is negating one frame and proposing another. I'm saying 'you should not **think** of his actions in terms of efficient use of resources; you should **think** of his actions in terms of **greed**'.

Now there is nothing in formal semantics that allows you to **provide** alternative framings of the world. In formal semantics you **just have simply** a state of the world that exists or doesn't. Fillmore was demonstrating that in a single sentence you could be talking about the way in which you conceptually frame the world. To characterize the meaning of sentence about alternate conceptualizations, you need not a logical theory but a cognitive theory in which one can talk about alternate conceptual framings. In formal logic, there is no cognition, and no capacity for alternative frame in a single sentence. Such examples indicated that formal logic was inherently inadequate for dealing with natural language semantics. Instead, one has to bring the mind into semantics.

The next great talk I heard in the summer of 1975 was by Leonard Talmy. It was one of his first talks on spatial relations. What he showed was that there are certain universals of spatial relations that **have to** do with bodily orientation and with what he called cognitive *topology*, that is, with the topological structures we **impose** on space. For example, the word "in", in its most basic spatial sense, has to do with a bounded region of space — a container with an interior, a boundary, and an exterior. Such a cognitively imposed container can stretch — it can be any size, any shape. Containers preserve a certain topology. Talmy observed that the concept of a path is also topological in this sense. You can stretch or twist a path and it **remains** a path.

In addition to such cognitive topological concepts for spatial relations, Talmy pointed out that other spatial terms **have** bodily orientations, **like** "front" and "back" and "up" and "down" and so on. The fronts and back of objects are not **part** of a mind-free, human-free world. They are **imposed** by human beings in certain regular ways. To characterize the meanings of spatial relations concepts, you **have** to bring in the peculiarities of the human body and the **kind** of cognitively **structured** topology that occurs with **containers**, paths, and other concepts. Again, the body was entering into **natural** language semantics.

So, in the face of **all this** evidence, in the **summer** of 1975, I realized that both transformational grammar and formal logic were hopelessly inadequate and I stopped doing Generative Semantics. I didn't know what to believe, **and threw** myself for a year and a half into rethinking what **all this** meant. I wrote **nothing** for **almost** two years. Finally I wrote "Linguistic Gestalts" (CLS, 1977) in which I argued that constructions were really the basis of **grammar**, the **meaning** of the whole could not be the **meaning** of the parts. Fillmore and I were developing the **same** basic idea about constructions around the same time, talking regularly.

Then, in 1978, I was teaching an undergraduate **seminar** at Berkeley and I came upon evidence of conceptual metaphor. What happened was this: I was teaching Searle's paper on metaphor in the class. I thought it was a terrible paper but I didn't exactly know why at the time. There were five undergraduates **in this seminar**. On the day we were to discuss Searle's paper, one of the women in **the** class came in late, very upset, sat down. After a minute she said "I'm **sorry**, but I'm not going to be able to function **in** the class today. I've had a metaphor problem with my boyfriend. Maybe you can help".

We **all** said "yes". After all, it was Berkeley in the 1970s. **And** it was a **true call** for help. She said: "On the way over **here**, my boyfriend said that our relationship had hit a dead-end street". She said: "I don't know what this **means**". So someone said: "Look, if it's hit a dead-end street, you can't keep going the way you've **been** going". Someone else said:

"Yeah. You might **have to turn back**". And then we realized that there was a whole set of expressions in English for conceptualizing **love** as a journey. Expressions like *The marriage is on the rocks*, or *The relationship is off the track*, or *Look how far we've come*, or *We may have to turn back*, *We are at a crossroads in the relationship*, *We are going in different directions*, *We may have to bail out*.

There are many different linguistic expressions for conceptualizing **love** as a journey. But there was a generalization over all of these **separate** expressions. The generalization could be stated as a **mapping** from the conceptual domain of travel to the conceptual domain of **love**: the lovers are travellers: the **love relationship** is a vehicle; the lovers' **common** life goals are destinations; and **difficulties** in the relationship are impediments to travel. What we **have here** is a conceptual metaphor, a way of conceptualizing **love** as a journey, not just a bunch of metaphorical expressions. This conceptual metaphor is a way of *reasoning* about **love** using the inferential **structure** of the concept of a journey.

Again we **have** a counterexample to formal semantics. The conceptual metaphor is not in the **external** objective world; it is **in** our minds. It characterizes how we conceptualize and reason about **love** in terms of a journey. Formal semantics **cannot** handle such cases. since there is no mind in formal semantics.

That is where the Theory of Metaphor **came** from. **I** then discovered that Michael Reddy, a year earlier, had written a paper called "The Conduit Metaphor" showing the same things. At that point **I started** to ask how many other conceptual metaphors there are in our conceptual systems. Over the following year, **I** discovered 30 or 40 of them.

In 1979, Mark **Johnson** visited Berkeley to teach in the Philosophy Department. I met **him** on the day **after** he **arrived** in Berkeley. He was going to edit a collection of papers on metaphor. We thought we might collaborate on a paper. The first thing we thought we would do would be to use the kinds of examples I'd found to argue against the recent papers by Searle and Davidson.

We thought about it for a week and then we decided that it was impossible to write such a paper. The reason that it was impossible was that, **in** order to argue against someone, you **have to share their** presuppositions. But the **evidence** contradicted what Searle and Davidson were presupposing. They **denied** that meaning was **in** the relationship between words and the world.

Instead, there are metaphorical aspects of meaning that are cognitive **in nature**, that are part of metaphorical thought. But Searle's and Davidson's theories excluded the very possibility of the **existence** of metaphorical thought. If **meanings** were **taken** as relationships between symbols and the world, then there could be no room for metaphorical thought.

What we decided to do **instead** was to write **first** an **article** and then a book telling **why** our work contradicted the presuppositions not **only** of Searle and Davidson, but the whole theory of meaning **within Anglo-American** philosophy. We **have been working** on this project ever since, **trying** to show in detail how philosophy has to change **in response** to work on metaphor, categorization and other aspects of Cognitive Science.

*How does all this compare with the general development of linguistics in the Anglo-saxon world. I mean, Chomsky and offshoots, and then functional theories, and the increasingly large number of grammars that are being devised?*

Well let's start first with generative **grammars** and with Chomsky. Our work

completely goes against it. And **in** an interesting way. When I was doing Generative Semantics, I assumed that it would be possible to fit my work together with Chomsky's. I assumed that for a very long time. And I assumed that the argument between me and Chomsky was an argument within Generative Grammar. It **turned** out that I was wrong about that for a very interesting reason.

I had certain commitments that I undertook when I **started** to do linguistics. The first commitment is what I'll call the 'cognitive commitment'. It's the commitment to see language as part of the study of mind. It implied, therefore, that evidence about the **nature** of the mind could change a linguistic theory. And in fact that's **just** what happened in the work I've just described. That is, when Rosch found there were basic level categories **and** when Kay and McDaniel found that color categories could not be in the **external** world, I was obliged to change my theory of language. The cognitive commitment was my first commitment.

My second commitment was that I was concerned with stating generalizations over every aspect of language and across them if necessary.

The third thing I had originally assumed in Generative Semantics was the classical theory of semantics. I assumed originally that semantics was the study of logic and of the relationship between symbols and things **in** the world.

And **fourth**, I had accepted in doing Generative Semantics certain aspects of generative linguistics: trees, precisely stated rules of grammar, accounting for **all** and **only** the well-formed sentences, but I included meaning as part of sentences.

What I failed to **recognize** at the time was that Chomsky had a very different understanding of generative **grammar**. Chomsky had a guiding metaphor for grammar, a metaphor so deeply entrenched in his intellectual worldview that he could not possibly give it up. Chomsky's basic metaphor was **this**: A sentence is a string of symbols. A language is a set of such strings. **And** a grammar **is** a device for generating such sets of strings. That is how *Syntactic Structures* starts out.

Now, a sentence is not just a string of symbols. There is meaning and intonation, and the symbol strings are in writing, not **in** speech or sign. But nonetheless Chomsky adopted that metaphor, for reasons important to his Cartesian philosophical views. The next part of the metaphor is that a language is a set of such strings. This doesn't **have** to be true; and in fact, one could argue that a language isn't a set in the **technical** mathematical sense of set at all. The third part of the metaphor is that a grammar is a generative device for generating this "**set**", that is, a set of rules framed within that peculiar branch of mathematics, which I now see as having nothing whatever to do with real languages.

Chomsky was, of course, committed to his own metaphor, which he saw not as a metaphor but as a necessary **truth**. For **him**, recursive function theory (or equivalently the theory of formal grammars) is to be **taken** for granted as being the right mathematics for linguistics. This has important consequences. One of the **main** ones is that meaning cannot **enter** into the grammar. Why? **Because** the theory of formal grammars is **defined** so that the meaning of symbols cannot **enter** into the rules for manipulating the symbols. If you **have** a commitment to the theory of formal grammars as your required mathematics for doing linguistics, then you **rule** out the possibility that meaning **could** be used **in** rules of syntax. It is a **straightforward** entailment of Chomsky's metaphor. This consequence is called the "autonomy of syntax". It's built into the basic Chomskyan metaphor and it **is** his highest priority, something he would never give up. Given any **putative** evidence against it, he would **assume** that the "evidence" could not be real evidence, and so would come up with an

auxiliary hypothesis to explain that evidence away —even if it meant missing generalizations about language.

Chomsky's metaphor was something he could not give up, no matter what evidence was provided or generalizations were given. On the other hand, my highest commitment was the commitment to look at evidence from both linguistics and other cognitive sciences, and to take generalizations across different aspects of language very seriously. Because we had different commitments, and we were not able to articulate those differences of commitments clearly, conflict was inevitable. If generative semanticists found evidence that meaning entered into syntax, Chomsky could not accept it as real evidence, since it would conflict with his central metaphor for syntax.

If the face of what we saw as evidence, he just narrowed the scope of the phenomena he called "syntax". Any time semantics or pragmatics was shown to enter into grammatical constructions or the distribution of grammatical elements (e.g., words and morphemes that are clearly part of grammar), Chomsky further limited the scope of syntax. It is now so narrow and uninteresting that it leaves out 95 percent of what traditional as well as early transformational grammarians called syntax. Anyone interested in describing all of a language will find that most of it falls outside of his "core" grammar. That is not a problem for Chomsky. He just isn't interested in most of the phenomena of language.

Functional grammar, on the other hand, are very much in accord with Cognitive Grammar. It just happens to study different things. It looks at discourse function, especially notions like given and new information, topic, focus, and certain aspects of narrative structure. These are very real phenomena that are part of language.

As it happens most cognitive linguists happen to be interested in other things. But Cognitive Linguistics is certainly open to all of functional considerations. We think that they are real and we greatly respect functional grammarians for their empirical approach and their careful study of a much wider range of phenomena in the world's languages than generative linguists study.

*How do you feel about Chomsky's emphasis on universalism, on his idea of a Universal Grammar?*

I need to talk about what that emphasis is and where it comes from before I can answer that. Chomsky is a Cartesian, a follower of Descartes, in a very deep sense. Chomsky's politics also comes from Cartesianism.

Descartes was an essentialist. He believed that there was a universal human nature and that there were essential properties that all people share that distinguish people from animals. Chomsky agrees with that assumption. He is also an essentialist. Again following Descartes' philosophy, Chomsky assumes that the mind is separate from, and characterizable independently of, the body. Accordingly, he believes that the study of neuroscience can shed no light on the nature of reason or language.

Chomsky also seems to accept other tenets of Cartesian philosophy:

- (1) Mathematics is the best example of human reason.
- (2) Mathematical reasoning is a matter of form, not content.
- (3) Human reason is general is a matter of form not content.
- (4) Reason and language comprise the essence of what it is to be human.

- (5) Since the **mind** is **separate** from and characterizable independently of the body, so reason and language cannot be acquired through the body.
- (6) Therefore they must be innate.

All of this is a priori Cartesian philosophy. There is no reason to accept this philosophical worldview, **and** many reasons to reject it. But let us continue.

What do these aspects of Cartesian philosophy **have** to do with Chomskyan linguistics? The link is **in** certain modern a priori philosophical assumptions that were especially prevalent in certain philosophical circles in the 1950's and 1960's. Let us call this "Formalist Philosophy":

- (1) Precise scientific descriptions can **only** be given by axioms systems. or by algorithms.
- (2) Proof theory **in** mathematical logic, Turing machines, and formal grammars (or Post systems, **formulated** by Emil Post) are equivalent [Church's Thesis].
- (3) **All** conceptual algorithms are characterizable by Turing machines (that is, the theory of recursive functions).
- (4) The study of meaning **in** natural language can be characterized by "semantics" – the relationship of the abstract meaningless symbols of a formal language in mathematical logic to the world, or at least to objectivist set-theoretical models of the world. In mathematical logic, there **is** a "formal language" made up of meaningless symbols. Proofs **operate** independently of the meaning of the symbols.
- (5) Logical proofs (especially in "natural deduction" systems) characterize human reason. Human reason is therefore abstract, a matter of formal symbols. Since proof theory and the theory of formal grammars are the same, the theory of formal grammars can characterize human reason.

Chomsky's metaphor fits the a priori philosophical assumptions of formalist philosophy perfectly. Language is **seen** as a matter of abstract formal symbols. The mathematics of language is the theory of formal grammars, which is the same as proof theory. which is what characterizes human reason.

Chomsky forged a link between 20th century formalist philosophy and 17th century Cartesian philosophy. Formalist philosophy **takes it** for granted that:

- (a) Reason **is** characterizable independently of the body
- (b) **Reasoning** is abstract, and a matter of pure form.
- (c) Reason is universal.

Chomsky's metaphor fits both **formalist** philosophy and Cartesian philosophy perfectly **in** the way it adds language to the picture. Language for Chomsky, **like** Reason for Descartes, is what makes us human, what constitutes our essence, what separates human beings from the apes. (Incidentally, Chomsky for this reason must deny that **animals have** any language at all.)

Language must be universal and must be innate for Chomsky, for that same reason that Reason had to be universal and **innate** for Descartes: It characterizes the essence of what makes *all* of us human (hence universality) and it **cannot** be acquired through the body (hence

innateness).

Language innateness and **universality** theses are not empirical hypotheses for him. They are, for him, necessary **truths** that follow from his a priori philosophical assumptions and his central metaphor.

Moreover, following formalist philosophy, the only way to be scientific is to use axiom systems and formal logic or, equivalently, **algorithms**, or, equivalently, the theory of formal **grammars**. Therefore, the only way to do scientific linguistics is to follow Chomsky's metaphor and use formal grammars.

What is the role of empirical investigation in Chomsky's view of "scientific linguistics"?

For Chomsky, **all** scientific linguistics must be consistent with Chomsky's metaphor, formalist philosophy, and the above elements of Cartesian philosophy. There can be no empirical evidence against these. **All** evidence must be made to **fit** these a priori philosophical assumptions.

These philosophical assumptions fly in the face of a huge body of evidence found by generative semanticists, cognitive linguists, functional linguists —as well as a huge body of evidence in cognitive science and neuroscience.

Is reason purely a matter of **form** rather than content?

The answer is "No". **All** of the work on the embodiment of reason **denies** it, from research on color concepts to **basic-level** concepts to experimental studies of conceptual metaphor to Damasio's evidence of the link of reason to emotion to Terry Regier's modelling of the acquisition of spatial relations concepts and terms on the basis of elements of brain **structures** (such as topographic maps of the visual field). Reason and our conceptual systems arise from the body. Descartes was wrong.

Correspondingly, cognitive studies of **grammar** indicate that syntax is grounded in our conceptual system which is in turn grounded in the body. Chomsky is as wrong as Descartes was.

*What would you say about the old Chomskyan idea of an innate Language Acquisition Device and the more modern idea of modularity?*

What Chomsky has suggested cannot be true. There is no single place in the brain where language is **located**. There are different centers that do different things and they are linked in various ways. There cannot be such a thing in the brain as a language module.

This is not **just** a matter of localization. A Chomskyan theory might say the language module is really distributed across various centers in the brain. But that would not work either. The reason is **this**: Chomsky's syntactic component has to be characterized in terms of the theory of formal grammars. **That is**, it must consist of symbols that are manipulated (or related to one another) independently of **their meaning** or any other psychological or perceptual or motor or emotional input. **Because** Chomsky's syntax is autonomous, his syntactic module must **also** be autonomous, which means it cannot **have** any input, immediately or ultimately, from **anything** non-syntactic, for example, anything bodily. If you look at Chomsky's drawings of syntax boxes in the mind, they never **have** any input. They cannot if they are to be autonomous. But such autonomy is impossible in a human brain. Brains are just not structured **like** that. There are no brain modules, localized or distributed, without input.

*Yes, still there are some psycholinguists that seem to support the idea of modularity.*

There are still Skinnerians too. As Tom Kuhn pointed out, old paradigms continue to exist long-after they are viable.

In general the evidence doesn't bear out Chomskyan modularity. Part of the evidence was supposed to be that there are brain damaged people who can form grammatical sentences that are meaningless, and people who are the opposite, who **have** no sense of grammar, who **have** certain kinds of lesions where they cannot put **grammatical** sentences together.

It doesn't quite work out that way. There are people who **have** agrammatism who can make **grammaticality** judgments. They **just** can't say the sentences. Their agrammatism doesn't mean that there **is** a **localized** language box that **is** damaged. It only means that certain neural connections required by sentence production that **have been severed**.

Liz Bates reports on her research with a **well-known Italian** architect who had a stroke. He had the symptoms of agrammatism. He could only say isolated words, not sentences. She gave him a particular **kind** of sentence to see if he could repeat it. He could not repeat it, but he could say one word in response. That word was the name for the classical Greek "trope" describing what was odd about the grammar of the sentence. This agrammatic **patient**, who supposedly had his "grammar box" damaged, not only could make grammatical judgments but could describe them with the proper ancient Greek terminology!

The point is simple. Agrammatism is not evidence for a grammar module in the brain.

*What's your opinion on parallel distributed processing?*

PDP **connectionism** is useful for many **things**, like distinguishing sonar signals of mines from those of rocks. It may **also** be a reasonable model for how human beings map sound input into sequences of phonetic features. But it is too unstructured to characterize most of human reason and language. **Parallel distributed** processing ignores the details of brain structure. It asks: how much you can do with the **simplest** kinds of structures. The answer appears to be: a **little** bit but not that much.

What people like Jerry Feldman and Terry Regier **have** done is to **take** connectionist models and model aspects of innate brain structure, for example, topographic maps of the visual field and orientation sensitive **cells**. They then ask what concepts and aspects of language can be learned given those innate **NONLINGUISTIC** structures. The question they ask is: how much of conceptual structure and language is embodied, **in** the sense that it arises out of brain **structures** that exist to **serve** other bodily functions: perception, motor functions, etc.

*Let's go back to the end of the 1970s. That was a time when there were some workers in artificial intelligence that used some versions of Frame Semantics. Did that influence any of your thinking at that time? I mean, proposals like Minsky's frames, or Schank & Abelson's scripts, or others?*

Yes. They **came into being around** the same time as Fillmore's Frame Semantics. Schank's work was based on Fillmore's earlier Case **Grammar**.

I was **very** much influenced by Schank's work. I learned about his work on frames

about the same time as Fillmore was **beginning** to develop his **frame** semantics. I spent a month in 1977 in Schank's **lab** learning what he and his students were doing. I **became** a part of that community. It was an **important** experience.

*You have written at length about prototypes and related phenomena in your book **Wornen, Fire and Dangerous Things**, and you discuss **Schema Theory** and **basic-level categorization**. among other things. **Have you ever tried to put all this together in a unified framework?***

I **have** thought it **through** a lot. I can see how many things might fit together. but I haven't really tried seriously to do it. It would be a huge task, much more than one person can do.

I've **been** doing other kinds of work. I've **been trying** to extend metaphor theory, to work out the details and apply it to many **areas**. That is a big **job** in itself.

**At some** time before very long, I would say **within** the next five years, **some** of us are going to **have to sit** down and try to **unify** all this work. But before then, I want to finish another book with Mark Johnson that we've **been** working on for **some** years. It's a big book on philosophy called "Philosophy in the Flesh". It is about the consequences for philosophy of the embodiment of mind, the cognitive unconscious, and metaphorical thought.

Those developments, **if taken** seriously, would radically change western philosophy. We want to show exactly why it changes it and how it changes it. Before I even think of **entering** into a project of unifying all of Cognitive Linguistics, I want to **finish** that book. I also want to do a book on the metaphorical structure of mathematics. Anyway, I don't believe one person can do that unification. It is a job for the field as a whole.

It is a difficult **job**. One reason why it hasn't **been tackled earlier** was that the **separate** parts were not very well worked out. Metaphor Theory had to be worked out, the Theory of Categorization had to be worked out, Langacker's Cognitive Grammar had to be worked out. We had to get **some** understanding of what image-schemas were. We had to understand what **constructions** were. Now we **have** come to the point where it is **almost** possible to begin to think of the unified theory, although the recent Fauconnier-Tumer work on blending shows that there is a lot in those phenomena that needs to be understood **better**.

*Could you give me **an** idea of what **the** place of semantics is within **grammatical** theory in general? **What** is its **relationship** to **syntax** and other components?*

I believe, just as Langacker **does**, and as I believed when I **started** doing Generative Semantics, that grammatical structure **consists** of what Langacker called "symbolization" — conventionalized pairings of elements of semantic structure with aspects of phonological structure (including ordering constraints).

I believe that predicate-argument relations of semantics are the predicate-argument relations of syntax, once symbolization —**that is**, the conventionalization of semantic-phonological pairings— has operated.

I believe that the propositional structure of semantics is syntactic clause structure under symbolization. I believe that semantic event structure is syntactic aspectual structure under symbolization. **And** so on.

I believe that the kinds of **structures** that you find in **syntax** are conventionalized

reflections of semantic-phonological pairings, and that there is NO autonomous syntactic structure at all.

That is something that Langacker has **been trying** to show in very great detail with considerable success, I think. **And** it is something that we **began** to show in the mid 60s while looking at evidence in syntax for logical form.

However, to **really** demonstrate it would take a unification of **all** the subparts of Cognitive Linguistics. I think **all** the evidence points to it, but the unification has to be done and no one has done it.

*You are very concerned with reasoning and you have explanations about whar reasoning is from the point of view of metaphor and metonymy. What I would like to know is what yourpoint of view is on work in pragmatics dealing with the same field of reasoning? Like rhe theory of implicature or presupposition.*

The **earlier** results in pragmatics that generative semanticists accomplished fits right in with Cognitive Semantics. Much of it can be accommodated in a relatively straightforward way. I think it is possible to take the mechanisms of Cognitive Semantics and Cognitive Grammar and use them to describe what goes on in pragmatics.

For example, take Grice's **Principle of Relevance**. That is just the use of frames and ICMs. Relevance is **finding** the appropriate ICMs for **framing** an utterance. Once you find them, there are **inferences** in context that **follow naturally**.

Grice's Principle of Quantity can be stated in terms of the metonymic principles involving scales. Indirect speech acts can be characterized metonymically as it was done in a paper at the ICLA meeting last month by Linda Thornburg and Uwe Panther.

Frame Semantics has a presuppositional background built into it. Composition of presuppositions follows the **principles** given in **Fauconnier's** mental spaces. Speech acts too can be characterized **using** frames.

In short, I think every aspect of pragmatics can be expressed in terms of Cognitive Linguistics. The reason it hasn't **been** an issue in Cognitive Linguistics is that many of the practitioners, such as myself, **Fauconnier**, Fillmore, and Sweetser worked on pragmatics in old days back in the 60's and 70's and know how it fits in.

*So, it is assumed.*

It is **assumed**.

However, for people **outside** Cognitive Linguistics who don't know the Cognitive Linguistic mechanisms, it is far from obvious. A good Cognitive Linguistics textbook should discuss the maner.

I don't mean to suggest that **all** the problems of pragmatics **have been solved** already and that Cognitive Linguistics has no new insights. Work now being done by Michael Israel on polarity items **within** Cognitive Linguistics **solves certain** classic problems in that area.

*What do you think about structuralist concerns with synonymy, antonymy and all lexical relationships?*

I think they are superficial consequences of Frame Semantics. If you do your Frame

Semantics right, then synonymy and antonymy fall out. They are **relative** to frames. That is one of Fillmore's major points.

Fillmore has shown that many apparent synonyms are not synonyms at **all** because they are defined by different frames. For example, he distinguishes between "on the ground" and "on land" and he points out that they seem to have the same truth conditions, but they don't really mean the same thing at all. "On the ground" has to do with the frame of airplanes and air travel and it is contrasted with "in the air"; whereas "on land" has to do with sea travel and it is contrasted with "at sea."

Two expressions may **have** the same truth conditions, but if they are defined with respect to different frames, they are not synonymous. Linguists who just talk about synonymy and antonymy without frames are missing most of the relevant semantics.

*What about the idea of semantic fields?*

Semantic fields are very real and they are defined **also** with respect to frames. Indeed, the phenomenon of semantic fields is what led Fillmore to develop Frame Semantics.

What Fillmore showed in his very first paper on frames was that words in the same semantic field, like buy, sell, price, goods, cost, and so on, are defined **relative** to a single frame, and that you can **only make** sense of semantic fields with respect to Frame Semantics.

People who just say: these words are **linked** together or they form a set, miss the inferential relationships among **them**. They **also** cannot explain their possibility for metaphorical use, **because** metaphorical use depends on the frame semantic structure.

*Is there any way in which Frame Semantics can be put in the form of a dictionary?*

Absolutely. It can be and Fillmore is doing it.

*Right now?*

Right now. Fillmore is the **main** linguistic consultant to the Oxford English Dictionary. He has a major research project now in which he is trying to get computer representations of lexical entries using Frame Semantics. **Some** of his students are trying to incorporate metaphor and metonymy into that as well.

*Can you give me **an** idea of how he is doing that?*

I don't **know** the computational particulars. The analyses are very much those he has done in the past and in many ways like those in **Cognitive Linguistics** in general.

*Yes, how would you define your idea of **an** ICM?. **Because** I believe that you have never attempted to work out a definition in your writings.*

The idea of an ICM is actually very simple. It's basically a frame which can **have** metaphor appended to it. Its relational **elements** can be characterized in terms of **image**-schemas. An ICM can be of various scopes. It can be extensive enough to be a folk theory. It can function as a narrative structure, or it can be **some** relatively small thing,

characterizing the structure of some small conceptual domain.

*Do you think machine translation will be possible?*

There are many things that are meant by machine translation....

*Computer-aided automatic translation. Programmes that do that on-line, the same way as a flesh-and-bones translator would do. And if it is possible, what would be the starting point?*

I think there are real problems with it. And the reason I think there are problems with it has to do with the fact that conceptual **structure** comes out of the body and human experience.

Moreover, different languages may **have** different concepts. Many concepts are universal, but many are **not**. Members of a different cultures may **have** very different experiences and different cultural **images** that lead to different idioms. Sometimes, the conceptual metaphors can be different.

I'm very skeptical about machine translation, though I think that machines can aid in translation in many ways.

*As they do right now.*

As they do right now.

I think that the best use is in particular domains where there is a limited vocabulary, particularly a largely international vocabulary, as in chemistry papers. There computers may help a lot. But in general I don't expect to see particularly good machine translations.

*Would you consider yourself still a linguist or are you a cognitive scientist, or are you midway between the two, or are you both?*

I'm both.

I'm very much a linguist. **Let me tell** you what makes me a linguist. I study language including the conceptual structure underlying language. I study linguistic regularities—regular patterns within the language, again including the conceptual system. The methodology I use in studying conceptual systems is an extension of traditional linguistic methodologies. Other fields don't use that methodology.

The methodological ideas that make linguistics what it is are, I think, extremely **powerful**, and can be extended in general to broad issues in cognitive science. That is what I've **been** doing, in **part**. I think **like** a linguist and even when **I'm** doing conceptual analysis of culture.

Now, I'm not the first linguist to do **this**. In fact, my **first** linguistics teacher was Roman Jakobson, who taught structuralism to **Levi-Strauss**. He **knew** that one could use **techniques** of linguistic analysis to study culture. Jakobson was a great **inspiration** to me in this respect.

*I once heard Michael Halliday say that the problem with linguistics at present is that*

*we have not been able to crack the code, but that is something that they have managed to do in the realm of physics and other natural sciences a long time ago. Would you agree with that?*

No, I don't agree with that at all.

The notion of "cracking the code" is a very strange notion. A language is incredibly rich. It depends on conceptual systems. Conceptual systems are incredibly rich; they are not a simple-minded code.

To understand conceptual systems you are going to **have** to understand their relationship to the body and neurobiology. Linguistics is inherently a cross-disciplinary enterprise. You cannot **really** understand linguistics without understanding conceptual structures. You cannot understand conceptual structure without looking at **evidence** from psychology and **anthropology**. And you can't understand why we **have** the conceptual structure we **have** without looking at neuroscience.

Often you can't even describe the conceptual structure we **have** without **some** insights from neuroscience. As **Terry** Regier has shown in *The Human Semantic Potential* (MIT Press), certain aspects of spatial structure can be described adequately **only** via neural computation.

That's a very profound result. That indicates that you cannot **separate** off linguistics as an autonomous discipline. **Language** and conceptual structure is enormously rich and it relates to perceptual systems, to motor systems, to **all sorts** of things in the body. It is not just a linguistic code that you are cracking. To understand spatial relations systems, you **have** to understand how relevant aspects of the visual system works. If you are going to do phonetics in an explanatory fashion, you **have** to learn how the auditory and articulatory systems work physically. That is not cracking a code. It is doing cross-disciplinary science.

*Your approach is very empirical.*

Entirely.

*Now, what do you think is the future for linguistics? Where is linguistics heading for right now?*

First, I should say that linguistics in **America** is in a very difficult position that Chomsky has placed it in.

There are very few linguistics departments in **America**. There are about 50. That is a very small number, and there are very few jobs for **linguists** in Linguistics departments.

When Chomsky's works **first came** out, a lot of people in other disciplines were very interested in the possibility that they could apply it to their disciplines —to the study of culture or politics or architecture or literature. But **because** Chomsky's theory predominated, and **because** it required that linguistics be autonomous and very narrowly defined, it **became** uninteresting to people in most other disciplines.

These days hardly anyone in literature or architecture or political science cares about generative linguistics **because** it says nothing to them of use for their disciplines. Government and Binding theory doesn't even **tell** you very much about language or thought.

The work in Cognitive Linguistics is very different. I find many people in many other

disciplines that are interested in the work that I'm doing, and that Fauconnier, Langacker, Sweetser, Tumer, and many other people are doing. We find we can talk to people in other disciplines very easily. I get invited to contribute articles to journals in disciplines as diverse as art, political science, mathematics, education, psychotherapy, anthropology, philosophy, computer science, and public policy. As a cognitive linguist, I give lectures in many departments about ways in which Cognitive Linguistics matters to those disciplines.

I think that is wonderful. And I think it is absolutely necessary if linguistics is to thrive as a field that linguistics be of major relevance to other disciplines. I think otherwise it will die.

Cognitive Linguistics is right now in the position of making very serious contributions to many fields. Let me give you an example. I have a colleague in the Political Science department who is doing a study of forms of democracy. In the democracy literature he has found over 600 types of democracy. He has been able to make sense of them using Cognitive Linguistics. He has found that they fit a radial category structure. Using the notion of radial categories, he can make sense of what was previously seen as being chaotic to political scientists. Feature semantics and the classical theory of categories could not make sense of this phenomenon.

The book I'm doing now on morality and politics and the notion of the family in American politics —it's called "Moral Politics"— depends on conceptual metaphor and radial categories. I believe it will allow us to make better sense of American politics and culture.

My sense of things is that Cognitive Linguistics is at the point of being able to be applied usefully and insightfully to virtually every discipline. And it is only if it is applied to a broad range of disciplines that linguistics will thrive and survive. Otherwise, linguistics is such a small field that it is really endangered.

Let me give you an example of the kind of danger that it is in. When the financial crisis at this university hit about two years ago and the university budget was going to be cut a great deal, there was a faculty committee put together to ask which departments should be funded and which part should be cut. The Social Science committee did not contain any linguist. It contained people from political science, history and economics who did not have any use for linguistics as they knew it — generative linguistics. Their report said that linguistics is not a very interesting discipline because it only studies language. They understood language as having not to do with concepts at all but just to do with forms.

Now, if they were talking about Generative Linguistics, they would be correct. Ironically, they happened to be talking about Berkeley where we study conceptual structure, which can be applied to all of their disciplines. Our reply pointed that out.

*Do you think Chomsky's Generative Linguistics will perish?*

Yes.

*Soon?*

No.

*It will thrive for some time?*

I don't think it will thrive. I **think** it will gradually decline, but I think **Kuhn** was basically right. A field doesn't die **until** its practitioners die.

The Linguistic Institute this past **summer** in New Mexico was very interesting in this respect. It was the first completely generative and functionalist Institute. And in fact the first time that any of these ideas was able to be taught at Linguistics **Institutes**, which have been largely dominated by Generativists. It was the largest Linguistic Institute ever. It had a wonderful faculty. Researchers in Functional and Cognitive Linguistics have **become** very good at what they do. They **have been** working at it for 20 years now, and many of them are extraordinary scholars.

The students were **suitably** impressed -students from around the country and around the world. Many of the students who came there **came because** they were tired of Generative Linguistics. They couldn't care less about it. They wanted to study real language. They didn't want to study GB. And they were very pleased with what they found. It was a very exciting and interesting Institute. And I think that tells us about how the field is changing.

*One last question. Since you've **been** to Spain at least twice, what is the idea that you have about the development of Linguistics in my country?*

I'm extremely impressed by what I see in Spain. I first went to Spain in 1976 at the time of the first election after Franco's death. That was a wonderful time. I was in Madrid during the election and it was a very beautiful thing to see. I spent that first election day walking through the streets of Madrid.

But in talking to linguists and people in artificial intelligence and people in other disciplines, I found that at that time intellectual life was very much closed off. Intellectual life was so **awful** under Franco that Spain was a very **backward** place.

I went back last year and I was **astonished** at the development that had **taken** place. In under 20 years, Spain has **become** a major intellectual center. In linguistics I found linguists who **knew** about the **latest** work in Cognitive Linguistics, in Functional Linguistics, and all sorts of related ideas that they understood very well.

They were **writing** excellent papers and doing interesting work, asking the deepest possible questions. I couldn't **have been** more impressed. I **think** that the potential of Spain as a center for linguistics is **unlimited**.

*Thank you, Professor **Lakoff**. I appreciate your time.*

Thank you. It's really **been** a pleasure.

## NOTES

1. The text that follows is a **revised** version of a transcript from a tape-recorded **interview** that I **held** with Professor Lakoff at Berkeley University (**California**) on **August** 31, 1995. **The revision** was made by Professor Lakoff **himself** in December 1996. I would **like** to express my appreciation to **Lorena Pérez** Hernández for her **assistance** in making **the** transcripts.