ENTREVISTA

COGNITIVE SEMANTICS: IN THE HEART OF LANGUAGE AN INTERVIEW WITH GEORGE LAKOFF

George Lakoff estréia a seção ENTREVISTA de nossa revista. A escolha desse eminente professor da University of California, campus de Berkeley, onde trabalha desde 1972, não será estranha ao público brasileiro. Lakoff, na entrevista, fala de sua contribulição à Semântica Gerativa e das razões que o levaram a abandonar o programa científico da Gramática Gerativa. Nos últimos anos, mais especificamente após a publicação de *Metaphors we live by* (1980)[1], livro escrito em colaboração com Mark Johnson, Lakoff vem desenvolvendo seu trabalho em Semântica Cognitiva, um dos ramos da Lingüística Cognitiva, que, por sua vez, conta também com a colaboração de autores como Ronald Langacker, Charles Fillmore, Paul Kay e Gilles Fauconnier. Nessa entrevista, Lakoff discute pontos centrais do programa científico da Lingüística Cognitiva (doravante LC), embora sua atenção esteja voltada para os problemas do sentido.

Graças à participação de muitos, tive a oportunidade de encontrar o professor Lakoff durante o *V International Congress of Cognitive*

[1] *Metaphors we live by* ainda não foi traduzido para o português, mas o grupo GEM (Grupo de Estudos da Metáfora) coordenado pela Profa. Mara Sophia Zanotto está trabalhando na sua tradução.

Linguistics, realizado no ano passado em Amsterdam. Agradeço, em especial, a alguns colegas que prontamente sugeriram tópicos para a entrevista. A problemática relativa ao papel do social na formulação de nossos conceitos - a hipótese básica da LC é de que nossos conceitos, que se manifestam no nosso falar cotidiano, derivam-se de nossas interações corpóreas com o meio ambiente - teve como ponto de disparo o questionamento levantado por Paula Lenz Costa Lima e Edson Françoso. A discussão sobre a hipótese da Unidirecionalidade - a hipótese de que o processo de projeção, que caracteriza a metáfora, se dá exclusivamente do domínio fonte para o domínio alvo - foi levantada no grupo de estudos coordenado por Mara Sophia Zanotto, que se realizou durante o XLV Seminário do GEL, em Campinas.[2] Heronides Maurílio de Melo e Moura contribuiu com a questão sobre a vagueza e sua relação com a verdade. As demais questões, assim como a formulação final das sugestões enviadas pelos colegas, são de minha própria responsabilidade. Meu interesse pelo trabalho de Lakoff já data de longe, de minha tese de mestrado quando a metáfora passou a ser meu objeto de estudos. Sem dúvida a abordagem de metáfora que proponho deve muito à Semântica Cognitiva.[3]

Agradeço ainda ao Prof. René Dirven, editor da revista *Cognitive Linguistics*, o contato com o Prof. George Lakoff. A Nelson Niehues e Gilberto Lopes Teixeira, devo a transcrição das fitas de péssima qualidade nas quais gravei essa entrevista. Ao Prof. Apóstolo Nicolacópulos a correção da versão final desta entrevista. Ao Colegiado de Pós-Graduação em Lingüística da Universidade Federal de Santa Catarina, agradeço a ajuda financeira. Por último, mas não com menos entusiasmo, agradeço ao Prof. George Lakoff que, generosamente, topou levar adiante essa conversa. O sucesso dessa entrevista deve-se ainda

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[2] Zanotto (1995).
[3] Pires de Oliveira (1997).

a muitos outros, anônimos, mas sem cuja ajuda a entrevista não seria possível. Agradeço-lhes.

O leitor menos versado em LC encontra, ao final dessa entrevista, uma pequena bibliografia que talvez o ajude a entrar nesse campo tão fascinante que é o estudo da linguagem, e em particular o da metáfora. O leitor já familiarizado com o trabalho de Lakoff e com a LC encontrará, nesta entrevista, a defesa inédita da hipótese de que também a metáfora se enraiza no corpo. Esperamos, pois, estar proporcionando ocasião para a abertura de debates. É essa aliás a idéia que norteia a seção ENTREVISTA: inspirar debates, artigos, críticas...

Roberta Pires de Oliveira
Florianópolis, 05 de janeiro de 1998

An interview with George Lakoff inaugurates the section INTERVIEW of our journal. The choice of this prominent professor from the University of California at Berkeley, where he has been working since 1972, will not be odd to Brazilian linguists. In this interview, Lakoff talks about his contribution to Generative Semantics and the reasons why he has abandoned the scientific program of Generative Grammar. In the last years, more precisely since the publication of *Metaphors we live by* (1980)[4], written with Mark Johnson, Lakoff has been working in Cognitive Semantics, a branch of Cognitive Linguistics, a new scientific program which Lakoff has been developing with the help of others. In this interview, Lakoff talks about some of the central issues in Cognitive Linguistics (from now on, CL).

Thanks to many people, I had the opportunity of interviewing

[4] *Metaphors we live by* has not been translated to Brazilian Portuguese yet, but the group GEM (Grupo de Estudos da Metáfora) coordinated by Profa. Mara Sophia Zanotto is working on it.

George Lakoff during the *V International Congress of Cognitive Linguistics*, in Amsterdam, last July. My special gratitude goes to my colleagues who have contributed suggesting many of the topics developed in the interview. The issue concerning the role played by our social interactions in our conceptualizations was raised by Paula Lenz Costa Lima and Edson Françoso, who kindly have sent me their suggestions. The core hypothesis in CL is that concepts arise from our bodily interactions with the environment. The issue on the Unidirectionality hypothesis – the hypothesis that projection goes exclusively from the source domain into the target domain – was raised during an academic discussion coordinated by Mara Sophia Zanotto, which took place during the XLV Seminário do GEL, in Campinas last May.[5] Heronides Maurílio de Melo Moura has contributed with the question about vagueness and its relation to truth. All other questions, and the formulation of the suggestions sent by my colleagues, are my own responsibility. My interest in Lakoff's work is not recent, in fact it goes back to my MA thesis when metaphor became my object of study.[6] Without any doubt my own approach to metaphor owes a lot to Cognitive Semantics.

I am also indebted to Prof. René Dirven, editor of *Cognitive Linguistics*, who put me in touch with Prof. George Lakoff. To Nelson Niehues and Gilberto Lopes Teixeira, my gratitude for their transcription of the interview. To Prof. Apóstolo Nicolacópulos for reviewing the final version of this interview. To the Colegiado da Pós Graduação em Lingüística da Universidade Federal de Santa Catarina, my thanks for financially supporting my trip to Holland. Lastly, but with all enthusiasm, my gratitude to George Lakoff who patiently answered my stubborn questions. The success of this interview must be credited to many other anonymous people without whom the interview could not have been possible. To them, all my gratitude.

[5] Zanotto (1995).
[6] Pires de Oliveira (1997).

The reader not familiar with CL will find at the end of the interview a bibliography which may help him/her find his/her way in such a fascinating field, the study of language and metaphor. The reader familiar with Lakoff's work and CL will find here for the first time a defense of the hypothesis that metaphors are also bodily-based. We hope to be promoting an academic discussion. This is indeed the aim of the section INTERVIEW: to raise debates, to instigate articles, criticisms...

Roberta Pires de Oliveira
Florianópolis, January 5, 1998

INTERVIEW

1. Cognitive Semantics and its background

R - *Cognitive Semantics (CS) is a recent approach in Linguistics. We may establish the publication of Metaphors we live by, in 1980, as one of its starting point. Before that your contribution to Linguistics was associated with Generative Semantics. Are Generative Semantics and Cognitive Semantics two radically distinct approaches?*

L - It's totally, totally, utterly different. They are irreconcilable. There is no way of bringing them together.

R - *You have greatly contributed to Generative Semantics, however. Could you tell us about the contribution of Generative Semantics to Cognitive Semantics?*[7]

L - Let me try to explain that. Generative Semantics asked the questions "to what extent Syntax depends on Semantics, and what is

[7]The reader may find a historical survey of Generative Semantics and Lakoff's contribution in Huck & Goldsmith (1995).

meant by Semantics". At that time, sort of 1963, it's now 34 years, Semantics meant Logic. It was an attempt to bring Logic together with Chomsky's Generative Grammar. It was very successful in several weak respects. First we had to develop empirical methodologies to study, which we did. Those are now normal ways of doing empirical research in Linguistics. These were done by me, then by Postal and Ross. We studied a vast number of phenomena and made a lot of discoveries by doing this: basic discoveries about the nature of anaphora, quantification, lexical structure, and so on. Those are now normal things in the field. Empirically, it was a major success. It was also a major success from the point of view of the discoveries about the relationship of Semantics to Syntax. What it showed was that most of the Syntax made use of Semantics and Pragmatics to determine whether things were grammatical, and also to determine their structure. So, that part of Cognitive Semantics in which there isn't really any independent syntax comes directly from Generative Semantics. And many of the empirical discoveries of Generative Semantics have been carried over to Cognitive Linguistics. The theory, however, was completely wrong. And it was completely wrong because it used two things that have failed: one is Formal Logic, which has not worked for doing natural language, the other Generative Grammar, which has not worked for doing natural language. The problem with Generative Semantics had to do with the fact that it was trying to do Linguistics using inadequate theories, namely, the Formal Theories, Formal Semantics, and Formal Syntax. And that was the major failure.

R - *When Metaphors we live by (1980) appeared, there was a favorable environment for the study of metaphor. Ortony's first edition of Metaphor and Thought was in 1979. The philosophical rebirth of metaphor may, however, be drawn back to I.A. Richards and Max Black in the 50's.*[8] *To*

[8]Max Black (1962, first published in 1954).

what extent does CS owe to the whole atmosphere which emerged from the refutation of the Logical Positivist approach to metaphor?

L - I had read Black and I had no interest in what Black was doing. Mark Johnson had studied with Paul Ricoeur. So he knew the Ricoeur tradition and the continental tradition and had come to the conclusion, through working with Ricoeur that metaphor was central to thought.[9] But I wasn't at all influenced by that tradition. What influenced me was the discovery that ordinary, everyday thought and language, and specially ordinary everyday thought, is structured metaphorically. That was the major discovery. Max Black hated that. He wrote a review of our book and he thought it was an awful book.

R - *I have never heard of it. Could you give me the reference of Black's criticism. Why do you think he hated your work?*

L - He should have hated it. Because it went against almost everything he believed. He thought that metaphor was not part of everyday language. He thought that it was part of Art, Poetry, and imagination.

R - *Right, but he talks about descriptions, and points to 'seeing as' as a general process of conceptualization.*

L - And we disagree strongly...

R - *Why?*

L - Because his notion of describing a perspective assumes that there's a truth about the world. He has taken an objectivist view of Semantics, as an analytical philosopher must. And he was also taking a kind of "thought as language" metaphor as his basis for what Philosophy is about. He accepted most tendencies of analytical philosophy. He had to separate out what was literal from what was metaphorical. He assumed that ordinary, everyday language had to be literal. His ex-

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[9]Paul Ricoeur has written a great deal on metaphor. He does account for Black's influence in his work, see Ricoeur (1981).

amples of metaphor were not systematic. He had no way of empirically investigating them. He thought that each metaphor was separated from every other metaphor, that there were no systematic inferences. He correctly saw that scientific theories were metaphors.

R - *But Black was the first to drawl attention to the cognitive power of metaphors.*

L – And he saw that there was a cognitive power of metaphor, but he didn't see it in ordinary everyday thought. And that was impossible for him given his philosophical beliefs.

2. A Challenge to Objectivism

R - *Since you mentioned Objectivism, specially in Women, Fire and Dangerous Things (1987), you make an attempt to formulate a theory of mind and knowledge which is experientially based, and which stands against what you call Objectivism. You call it Experiential Realism. What does it consist of, and what is its relation to Objectivism?*

L - Well, another way to talk about it would be "Embodied Realism". The idea is this. It begins with certain basic concepts like spatial relation concepts: IN, ON, OUT, THROUGH, and so on...[10]

R - *Schemas...*

L - Yes, schemas, which are not out there in the world, but which we impose on the world in a way that allows us to function in the world. They are interactive, in a sense. They are not just impositions. They come out of our embodied interactions in the world. Similarly, basic level concepts have to do with perception, mental imagery, and motor movements in the world. They too have to do with our interactions in the world. Now these concepts do not characterize the world in itself but how we interact in it. So, that's not objectivist, but it's not also

[10] In CL, concepts and schemas are represented in capital letters.

subjectivist. It is not idealist. It is an interactive account. That's the idea behind Experimental Realism that now we call Embodied Realism. The idea is that our understanding of the world is not just a correct description of what is objectively there. Our categories are not out there in the world. We know that colors are not out there in the world independent of people, and so on. We know that spatial relations are not just out there in the world. One of the things that Regier showed was that spatial relations depend upon the structures of our brains.[11] We have topographical schemas in the visual field that allow us to have topological spatial concepts like CONTAINERS and PATHS, and so on. We have orientational sensitive cells that allow us to orient directions relative to our bodies in characterizing spatial relations. The fact that we have very peculiar structures of the brain, the brains that we have, and the structures of our bodies determine the structures of our conceptual systems together with our interactions in the world. It's a combination of both things at once. It's not just simply a projection of something onto the world that isn't there. So it's neither subjectivist nor objectivist. It's an interactional theory. It says that we have basic concepts that arise from our direct interaction with the world and they are not metaphorical, and then we have metaphorical projections of those to more abstract concepts.

R - *But you do not give up the notion of truth, do you?*

L - Yeah...

3. Is Truth still important?

R - *Let me put it differently. Pinkal (1995) shows the semantic indeterminacy of the concept of 'length of a river'. He shows that one can arrive at different results, depending on the 'measurements procedures'. The con-*

[11]Regier (1996)

cept of 'length of a river' is imprecise and does not yield a 'precisification'. This precisification is context-dependent. So the truth of "The length of the Amazon river is x" cannot be determined only by semantic structure.

L - But look! Hold on for a second. That assumes an objectivist definition of semantics in terms of the relationship between symbols and things in the world. It's a false definition of semantics.

R. - *But that is precisely the question. What's the role of truth in Cognitive Linguistics? Would you agree with the assumption that truth is not a matter of semantics?*

L - Well, no. Semantics has a role in truth, it's the reverse. But we need the notion of truth.

That is, you can't have truth, you can't say whether the sentence is true unless you know what it means. Meaning precedes truth, understanding precedes truth. What we have argued since there are metaphorical truths, like 'John wasted an hour of my time this morning', depends on the metaphor of the time as a resource. But that can be true. If you conceptualize time as a resource that can be true for you. It is not objectively true, because time is not objectively a resource. It is not objectively true in the world, it has to do with metaphor. If you understand the world using the metaphor, then it can be true. But that means truth is relative to metaphorical understanding, and, as it is always the cases, truth is relative to understanding and to embodied understanding. You can't try to get a theory of meaning out of truth, truth requires a prior theory of meaning. Objectivists, who are trying to avoid anything that has to do with the mind or the body and try just to have symbols fit the world, fail. It just does not work. It does not account for any of the interesting ways in which natural language works.

R - *There are, however, several types of theories of meaning in semantics: coherency theories of truth, for instance.*

L - Sure, but that is the part of the same thing. What is pragmatics? It is simply the part of semantics that arises from understand-

ing in context. It is not different in character from any other part of understanding. It just has to do with what is presupposed and about context. In fact there is a pragmatic part of meaning of words and structures, namely, What is presupposed in the context? What is assumed about the speech act, and so on. Pragmatics is simply a part of the semantics of speaking.

R - *Semantics is really the heart of the language, isn't it?*

L - Right!

4. Concepts: bodily based or socially constructed?

R - *The relationship between concepts and language is certainly a vexed question in metaphor research. The thrust of your writings seems to rely upon the assumption that language reflects conceptual metaphors, i.e., that language is not independent of the mind, but reflects a perceptual and conceptual understanding of experience. Does the organization of language, besides reflecting our conceptual systems, help shape them as well?*

L - Well, there is a difference between what we believe and what we talk about. And the reason is this: the things that are physically embodied are easier to study than interpersonal interaction. A child at birth interacts with its parents immediately. There's personal interaction, physical interaction, every kind of interaction, right away. It's not that interpersonal interaction is less important. It's simply that we know less about how to describe it. We know less about how it functions in language and in reason at the present time.

R - *But it is always possible within the framework of Cognitive Linguistics to trace moral and social concepts back to primitive bodily interactions. If you have an abstract or a concept highly dependent on culture, let us say "Democracy" or "Love", you can always trace it back to our bodies, isn't that right?*

L - There is a difference, as I said before, between what we

believe and what we write about. We write about something we have evidence for and we believe that culture plays a major role in language, although we don't have a lot of evidence for that. Partly because the evidence has not been gathered together in a way that would be good to this field. But we have no doubt that interpersonal relationship play a major role in language. Take, for example, the fact that children when they are born are able to imitate their parents, and they are able to get their parents to react positively. This is an interpersonal fact about human beings at birth. In order to imitate they have to be able to project their bodies onto to their parents bodies, and they have some idea how to control their bodies, in the way that the parents are controlling their own bodies. But, that takes a remarkable time of neural sophistication, which is the ability to project your body out to someone's else. This is the basis of empathy. So it's very important in learning motor programs, in learning all sort of things about having a function in the world. It would be silly to say that this capacity plays no role in conceptual systems. Not only it plays a role in conceptual systems, but it plays a role in language. For example, as Claudia Brugman shows in her study of Mixtec, there, you have a system of body part terms that express spatial relations.[12] And the way they work is by the people projecting their bodies onto the things in space, and that capacity of projecting your body onto to something else or someone else, is necessary in order to understand space structures in those languages. Now, that seems to be the same capacity as the interpersonal capacity, the capacity to imitate, that interpersonal capacity is also physical, it's not a separation between the physical and the cultural, or the physical and the interpersonal; they are both one and the same. The interpersonal capacity is at the basis of linguistic capacity for conceptualizing space.

[12]Brugman (1983;1984)

R - *What about a concept like LIBERTY? Does not our social history play a role in its conceptualization? How does Cognitive Linguistics deal with abstract concepts?*

L – I think this is an incorrect analysis. The idea that liberty is abstract is false. Let's take that and see why. Liberty or freedom has to do with the EVENT structure metaphor. It has to do with constraints on action as motion, and constraints on action understood as constraints on motion. So part of the concept of liberty or freedom has to do with the issue of constraints, which is conceptualized and reasoned about as if it were constraints on motion. So the idea that liberty is a purely abstract concept is false.

R - *So interpersonal interactions play a role in our conceptualizations, although they have not been fully described theoretically*

L - Otherness and empathy is a major part of what we are doing. It's a major part of our Ethical theory, Moral theory. This is not something we have written about largely because we don't have enough to say about it. Consider the fact that the child at birth can imitate its parents. We are born with the capacity to imitate. What does that mean? It means that we can see something and feel it in ourselves and that is the basis for empathy. And empathy is one of the highest moral constraint. So we see morality, and specially the part of morality that has to do with empathy, as coming from something embodied. We don't write about this largely because we don't have a lot to say about it in terms of linguistic analysis. We don't have an analysis of concepts that we can talk about with respect to this. We don't have models of how empathy works. We don't have neural models of what imitation is. We would like to. We are trying to get students interested in working on it, but they don't yet know what to do. So it's not that we don't believe in it, it's that we don't have very much to say of any great substance.

R - *What about the Post Structuralism tradition and its stress on language as an institution that determines our concepts?*

L - That's a metaphor for language, the metaphor of the world as text. That is used in Post Modernism. That's not what Linguistics studies. We study language and thought as opposed to the world as text. We also thought of how we understand the world . That is part of Semantics and the conceptual system, but we don't believe that the metaphor of the world as text is true, and it is not part of what we are doing. We look at the world as the world.

5. The Centrality of our Bodies

R - *Let me insist upon this point. Is our concept of empathy reducible to bodily reactions?*

L - By bodily reactions we mean everything. Anything in the brain is bodily related. What we are saying is that thought is structured the way it is because our brain is structured the way it is. What we are arguing against is a 2000 years old tradition, which says that reason is out there in the structure of the universe, that it is disembodied. It has nothing to do with the human body. That there's such thing as reason independent of bodies and brains. It seems to us that the evidence goes the other way. If you actually look at the way that human concepts and human reason is structured, it has everything to do with spatial relations, which has everything to do with the visual system; aspect has to do with the motor system, and so on. What used to be considered purely abstract reason turns out to be a form of body based reason. And that is an empirical discovery.

R - *Piaget has said something quite close to this.*

L - Very vaguely. Piaget saw that the understanding of, for example, causation came out of a child's dropping things. I think that's correct. But Piaget also thought that if you advance from one stage, then you left behind the other stage. This seems to be false. He thought that there was a higher stage of abstract thinking, and that seems to

be false. The details are very unpiagetian when you think of the rest of Piaget's work.

R - *Wouldn't that be some kind of reductionism to a physicalist approach, physicalist understood as a kind of "bodilism"? The discussion of the embodiment of anger, on WFDT, (1987: 406-408) suggests that this is at least in part what you have in mind.*

L - There are two types of reductionism. It's true that it fits one kind of reductionism and it's false that it fits another. It's important to distinguish between the two kinds of reductionism. There is one form of reductionism that says that there's no relevant higher level of description of something. I don't know anyone who really believes that. I know, for example, that Churchlands do not believe it.[13] It's sort of silly reductionism. It says that you can only describe the neural level and there's no higher level that you can describe. And what we are claiming is that it is not true. There are kinds of computations done by neurons and they can perfectly well be described in a way that we can characterize at a higher level. There are canonical computations being carried out by certain kinds of complex neural structures, and we can describe those, completely and thoroughly. So we are not saying that it is just somehow down there in the neurons with no higher level of description possible. However, what's real about cognition is that it has to be done by neurons, because if it's not done by neurons, it's not done. The only question is 'how is it done by neurons?' And that is not a dumb form of reductionism. It says yes, it's physical. Yes, it is carried out by the body, everything is carried out by the body, not only is carried out by the body, it's shaped by the possibilities of the body. And that is the big thing. It's not like a preexisting form of reason or language that happens to be instantiated in the body. Not at all. There's no preexisting notion of reason or language that is outside the body. It's the body that makes all of reason and language possible.

[13]Churchland and Churchland

6. Universal Concepts

R - *Would you say we have universal concepts? Do we have universal feelings? In WFDT, you claim that anger, for instance, is universal and it may be explained by physiological reactions.*

L - Yes, there are universal concepts. There are universal metaphors, universal aspects of language, because we all have very similar bodies and our physical experiences in the world are very similar. Those are where universals come from.

R - *So, you are on the opposite side of the Whorfian hypothesis about language?*[14]

L – No. The Whorfian hypothesis that is usually described is badly described. There is a large chapter on this in *Women, Fire and Dangerous Things*. Whorf is much more interesting than everybody gives him credit for and he said many, many more interesting things than linguistic determinism. Whorf had a theory of universals. Whorf taught Summer school courses in which he went through the kinds of universals of semantics that would show up in every language. So Whorf was not against the existence of universals. People describe him as if he were, but that's not true. He was interested in many, many things. The use of metaphors in language. He thought incorrectly that there were languages that had no metaphors. He was wrong about it. But he was right about a great many things. He was right that there are differences in conceptual systems and that these differences do show up in different parts of language. And he was specially right that the morphological and grammatical parts of language function differently than the non-morphological parts. They function more automatically, almost like reflex. And therefore the kinds of concepts coded in those systems are automatic and unreflective. He said that this is important, and he

[14] Whorf (1956)

was right. We are not against that. In fact, one of the things we are very much concerned with is developing a neural theory that will characterize the differences between those aspects of language that are subject to reflection and those that are not. We don't have it yet.

R - *So, empathy, understood as the capacity to imitate in our body someone else's movements, is universal, because, roughly speaking, we all have the same body.*

L - Well, we all have common conceptual systems, and that common ideas have to be expressed in languages. What that means is that shared aspects of our embodiments show up in languages. Certainly, we all have bodies that are different from each other in lots, lots of ways. But they are also the same in lots of ways. It is the sameness that simply shows up in language.

R - *I have problems with the idea of universal contents....*

L - Well, There is a difference between shared and universal concepts. So, for example: If you are a child growing up in Bali you learn how to do Bali's dance from the time you can walk, and you learn certain ways of moving your body, that no westerns will ever learns. Yet it is shared in that culture. We can refer to, we can describe and have an understanding of the dancer's movements, and of the way people dance. That has to do with cultural sharedness, not with universal.

See, there is an interesting case in Tibet. In Tibet there are over one hundred words for different meditation stages, because meditation is a very important part of Tibet culture. And it's thought very early and in great detail. And there are certain words for certain stages, and they are not universal. If you haven't grown up in a culture that does those forms of meditation, then you have no idea of what any of those terms could mean.

R - *Ok, but it doesn't matter from which culture I come from, it may be utterly different from yours, both of us share the PATH schema, for in-*

stance. It is precisely the sharing of basic level concepts and image schemas that sustains the possibility of communication itself.

L - Exactly. Those are shared image.

R - *When you talk about universal concepts you do not mean the same as Wierzbicka's universal concepts, right?*[15] *And she also claims to be a cognitive linguist?*

L -But I don't see Wierzbicka as a cognitive linguist. Cognitive Linguistics has been a contested concept. For me the fundamental thing about being a cognitive linguist is that you believe in the embodiment of meaning. Since she is an idealist...

R - *She claims to be a Leibnietzian.*

L - Yeah, she is a Leibnietzian

R - *So that's very different from what you have been proposing, isn't it?*

L - Very different.

R - *But she has said - I don't know where precisely, but I remember reading it - that she was the first cognitive linguist in the world, that she was the first to propose a cognitive approach to meaning. Her project is to establish the "universal alphabet" of meanings.*

L - Yeah! But that is not what Cognitive Linguistics is about. Cognitive Linguistics is about the embodiment of meaning. It's about the lack of separation between mind and body.

R -*That seems to be the paradise which everyone is looking for: tying together mind and "brain", a metonymy of body.*

L - Well, actually it is not what everybody wants. Chomsky does not want it.

R - *He does say so. He says that if you are a post-Newtonian researcher, or a scientist, and that is what Chomsky is, then your approach cannot be dualist in the Cartesian way, because Newton has shown us that*

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[15]Wierzbicka (1992, among others)

matter has mysterious forces.

L - But that's only giving a tiny part of Cartesianism, namely the idea that there is a matter of substance. Right!? But that you don't know. Chomsky doesn't talk about language coming out of the bodies.

R - *No, not at all.*

7. The Centrality of Metaphor

R - *You ascribe to metaphor a very important role in cognition because by 'metaphor' you mean a cognitive process of mapping a source domain of experience onto a target domain. Thus, a sentence like "I spent twenty two hours to get here" is in your account metaphorical. Would you say that the importance of metaphor is due to the fact that it fully ascribes a structure to the target domain, in other words, the target domain does have a structure of itself?*

L - No. That's not true... Absolutely not true...

R - *Would you say that the target domain has a structure of itself, which is independent of the mapping? Let us take, for instance, the concept of time.*

L - Time is interesting with this regard. Where does the internal structure of time come from? It comes from events, that is, we understand time in terms of recurrent events. We understand time in terms of the rising and the setting of the sun, of the swing of a pendulum, the motion of a clock, dripping of water...

R - *Sleeping and waking up.*

L - Yes, sleeping and waking, heart beat, pulse, and so on. Recurrent events are what characterize the structure of time, the apparent structure of time. Notice what that means. It means that time always moves forward and not backward. You can quantify time in terms of events that recur regularly, and so on. And that is what gives the structure of time. And this is also true at the neural level. There is,

for example, every fortieth of a second, a neural firing around the basis of the brain and it then spreads out through the brain. It's a hypothesis, it may not be true, that this is what characterizes the brain's clock, in a way. There are other neural firings that may be true to this. Maybe not a single clock, but many clocks. What is a clock in a brain? It's a regular firing of neurons somewhere. It's that regular firing that regulates other operations.

R - *Would that be the literal - in your sense of the word 'literal' - concept of time?*[16]

L - Almost a metonymic notion of time. But time isn't inherited. Let's call it literal notion of time. Then the metaphors for time, like TIME AS A RESOURCE, TIME AS A MOVING OBJECT, TIME AS A LOCATION IN SPACE, those are projected from our understanding of motion, space and resources onto that domain.

R - *They are all metaphorical, right?*

L - Yes.

R - *What puzzles me is that some projections are blocked. For instance, I can say "he came on time", but I cannot say "he came out of time". "He came under time". These are not possible, acceptable sentences. So there are some spatial prepositions which may be used to conceptualize time, whereas there are others which are blocked. Where do these constraints come from ?*

L - Well, mapping is pretty much universal. So far as we can tell, the metaphors for time, aside for time as a resource, the spatial metaphors for time are universal. Joe Grady has been working on a theory of how that works, and Chris Johnson[17] has a theory of why that's the case. The idea is that there's a correlation in experience be-

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[16] By 'literal' Lakoff understands those concepts that are directly grasped by our bodily interactions, the structure of which is independent of the process of projection. See Lakoff (1986).

[17] Joseph Grady and Christopher Johnson. See Grady & Johnson (to appear).

tween the passage of time in terms of recurring firings and the structures in your body and motion and space. As you see things moving towards you and that correlates with the structure of time. And that correlation gives rise to the metaphor.

R - *This would be a universal metaphor, right? It has to be a universal metaphor because it is a bodily correlation.*

L - We have had students working on "time" in African languages and "time" in other languages, and they are all the same system. They show up in different surface forms, but the conceptual mapping is the same.

R - *Thus, the target domain, time, has a structure which is independent of the mapping.*

L - There's a structure that is independent of any particular metaphor of love. It may not be a very rich one. It may not be a highly structured concept... When you have a lover, a beloved, an emotional relationship, a positive emotional relationship, and lots and lots of types of complex feelings, but it may not be structured enough to reason with then you have lots of metaphors that allow you to conceptualize love in terms of other kinds of experiences. Now, one of the things that comes out of Grady's work, that is not appreciated enough, is that he has a theory that all metaphor comes out of what he calls primary metaphors and that primary metaphors arise from primary experiences, and that these are correlations, they have to do with correlations in our experiences. Like correlation between motion and the passage of time or between quantity and predicality. He has been looking at hundreds of such co-relations. The others are what he calls instance relationships, for example, reaching a destination is an instance of achieving a purpose. You understand "achieving purpose" metaphorically in terms of the spatial basis of reaching a destination. Those are instance cases. So there are metaphors based on instance relations and time and others based on correlation and experience. He thinks that com-

plex metaphors are put together out of the simple ones. There's actually much more in what he is saying. Different languages can put them together in different ways. It's a very interesting hypothesis. It may not account for all the metaphors, but it certainly accounts for the universals.

R - *Thus, metaphors are also embodied. That is a nice hypothesis, indeed.*

L - Yes, metaphor is also embodied. One thing that I think comes out of that idea is that we are used to giving functional explanations for metaphors, we say, literal is not rich enough, we need metaphor, but if Grady is right then that is not correct. What it says is that metaphor just arises because we are neural beings and we are embodied beings, and because of these correlations which are characterized in the neural systems as mapping across domains. What is a mapping? It is a neural connection across domains. Correlations have to be neural connections across the domains. If we have them we would naturally reason metaphorically whether we wanted or not.

R - *This is really a nice hypothesis!. Are we saying that primary metaphors are bodily-based synesthesia?*

L - Yes, because that would certainly give you co-relation on basis for metaphor

8. Conventional and Poetical Metaphors

R - *In your book with Turner, More than cool reason: a field guide to poetic metaphor (1989), you try to account for the problem of poetic metaphors. You distinguish conventional from poetical metaphors. Poetical metaphors are less conventional and more dispensable. Aren't you suggesting that poetical metaphors are deviant and ornamental?*

L - What we argue is that most of poetical metaphors, or all poetical metaphors, use everyday devices. Most of poetical metaphors

use every day metaphor. However, there are two cases that are different. One is image metaphors which preserve image schemas across metaphors, but they can be new in poems, and the second kind was what we call generic- specific metaphors, which are cases that we described in chapter 4. We also look for extensions of every day metaphor. There are three differences: extensions of the everyday metaphor; image metaphors and novel uses of generic-specific metaphor. But most poetical metaphor is not separate from the every day metaphor.

R - *Do poetical metaphors play a minor role in cognition?*

L - I don't feel in that way, I am very much interested in poetry, I think much more of language is poetical than people realize. I think the devices of poetical metaphor are actually used all the time in language. We may have new image metaphors, new generic specific metaphors all the time. There is a poetics of every day language that just is not an area that has been described. So I don't give it a minor a role at all.

9. The Unidirectionality Hypothesis

R - *Metaphorical mappings are said to be unidirectional. The Unidirectionality hypothesis states that the mapping goes from the source to the target domain. The target domain does not organize the mapping. This seems to be a criticism against Black's interactionism.*

L - Yes, that's true.

R - *If the target domain does not play a role in the mapping, why do we have different mappings in "Jesus is the lion" and "Devil is the lion" (both of them were taken from the Bible)? Here the same source domain is organized differently depending on the target domain. Thus, there seems to be some problem with the unidirectionality hypothesis.*

L - There is a lot to be said about it, the person who has written

most about this is Helena Morgan. She took the press of accounting for counter-examples and worked on them. She chose examples where the domain is a special kind of competition. Namely, the domains are war, sports, games, races, and predation. Those are the basic domains of competition. She found that it's very common to understand war in terms of sports, or sports in terms of war; or races in terms of war, or sports in terms of races, and so on, or war in terms of predation. Any kind of competition can be understood in terms of the type of competition and then can be applied for another type. Now, she showed several things. When you attempt at the details, let's say sports as war and war as sports, you get different mappings. So the unidirectionality part is preserved, in addition to that can be explained, in the following way, that in each case, competition can be seen as a special type of competition. So competition in general by a generic specific schema metaphor can be seen as war, or can be seen as sports, or as races, or as predation. There is a general set of metaphors, which are all generic specific, let's say: competition as war; competition as race; competition as predation, and so on. Now, once you have that, if you understand competition as war, then you can apply that to a special case of competition, like racing, and you can see racing as war, and you can see the mechanism by which this occurs. It turns out that this is not bi-directional. It's unidirectional, and it's the only possibility when you look at the details of the mappings: mappings are not bi-directional, because different inferences are being mapped in different cases. It looks bi-directional, if you ignore the details of the mappings and only ask which domain is being mapped onto which other domain. Then it looks as if domain A is mapped onto B and B onto A. But they are mapped onto A in different ways, like different mappings. Unidirectionality is preserved, because unidirectionality applies to mappings between individuals, not mappings between domains.

R - *Ok. When we say that 'mother is God', and 'God is a mother'*

we say two different things. But this is not the point...

L - First of all, those are just linguistic expressions, not mappings and they need to be understood in terms of particular mappings...

R - *That does not change my argument. We can re-construct them as cognitive mappings.*

L - But what else besides God is mapped onto mother or mother onto God? Is nurturing mapped? Is giving birth mapped?

R - *These are possibilities, a whole network of interrelated sentences could be mapped.*

L - But, these are also going to be different for different cultures and different people. For example, there is a Goddess movement in Berkeley, and they say that "God is a woman". What do they mean? Is that God is nurturing, that God is bountiful, that God takes care of people? Many things of this sort. It has female concerns of certain types. You can imagine a very different understanding of a woman being a God: women are dangerous, they are evil. Something like that. It's a totally different mapping. So you can't just say that there's a metaphor "God as woman". You have a different one, depending on the mapping...

R - *I entirely agree with you. This is precisely the dispute in Theology right now. Some theologians are proposing that "God is a mother" is a good metaphor, others argue that there are evil connotations associated with women, and so on. We have different interpretations...*

L - And you have nurturing fathers and nurturing parents and different models of Gods and mothers and that's just what you should expect under the theory of unidirectionality.

R – *What is important for me is that when you interpret "God is a mother", you are trying to conceptualize God and at the same time you are, in a sense, organizing what you are going to understand by mother. In this sense, Black's interactionism seems to be closer to the truth.*

L – No, not at all. You have to take into account target domain

overrides. Read my paper on Ortony's book, *Metaphor and Thought.*[18] The target domain override is a case where the mapping is carried through with contradicting internal structures of the target domain. For example, this applies primarily to unconscious mappings, if I say "I gave you that idea" normally, if I give you an object after I give it to you I don't have it anymore. But If I give you an idea I still have it, right?

R - *"I have some repeated ideas, would you like some?"*

L - But this is a joke.

R - *Of course it is.*

L - The thing about it is that given your knowledge about ideas, that is going to override the mapping from the domain of gifts. This is a completely regular process that happens all the time.

R - *Thus it is part of the unidirectionality hypothesis...*

L – No, it's not entirely part of it. It means that the inferences that are carried go from one to the other, that's all.

R - *And that you cannot carry inferences from the target to the source...*

L - Okay...

10. Language and World Views

R - *Would you say that changing our ordinary metaphors is a way of changing our world view. For instance, instead of seeing people as numbers we should try to see people as...*

L - That's true. I think it's possible that once you understand your own metaphor that there are certain possibilities of changing the world view. I think that's true, but I think that is not new. I think every therapist knows this.

R - *Yes, but there is a danger in this position.*

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[18] Ortony, (1983) second edition.

L - But there is nothing dangerous in my description of it.

R - *The danger is not in the description, but in the prescription.*

L - It is not a prescription. I mean the prescription is simply the same one that Socrates had. : it is better to know about yourself than not to know about yourself. That's the only prescription and then, you make your choice. I am not suggesting that we should manipulate people to change the metaphors at all. In fact, if you know yourself, then you are less subject to that manipulation. So it is not like that at all.

R - *It is a relief to hear you saying so, because I've heard some people saying that you would like to promote a change of world view.*

11. Language

R - *Let me change our topic to language. In several of your writings, we read that language is a reflection of our cognitive structures, which are bodily based. But isn't it something, call it "la langue", which has some kind of autonomy and which precedes us, a public treasure, so to speak?*

L - What is language itself? Suppose you'd subtract all of Phonetics, everything to do with actual sound systems, the auditory system, the acoustic systems, and you subtract everything that has to do with Semantics, that is, argument structure, hierarchical semantic structure, and, you know, suppose you subtract everything that has to do with attention, and so on, you have almost nothing left. That is, what we see is an organization of cognitive faculties on the phonological side, and on Semantics and Pragmatics side, and the attention side. The functional side has to do with attention and memory, and so on. All those things come together to structure what language is. There are only particular ways in which these can be put together to structure what language is. I don't see anything in the language that is truly independent of all these things. I don't see any phenomenon at all that is independent of all these things.

R - *If I understood you correctly, language is not a social institution. What is language, for you?*

L - I don't know what language is, if it's not a relationship between the phonological means of expression and, in sign language that would include hands as well, and concepts. The way which you express in phonological form what you conceptualize, and that doesn't exist independently of the kinds of ideas expressed, nor it exists independently of the phonology and the actual phonetics. And phonology doesn't exist independently of phonetics.

R - *Isn't your definition of language quite close to Chomsky's, in the sense that Chomsky defines language, namely syntax, as a bridge linking phonology to semantics, sound to content?*

L - No, it isn't. It's very different. Chomsky says that there's an independent existing structure, independent of meaning and of sound, that is inborn, and so on. When we do empirical research we find no need for that structure at all. There is absolutely no reason to believe that it exists. Not only that, it can't exist. Chomsky's syntactic structure is biologically impossible. Let me explain why. Chomsky's linguistic structure comes with mathematics, the mathematics of recursive function theory or the theory of formal languages. The theory of formal languages or recursive function theory is a form of mathematics in which we manipulate symbols, and the rules of manipulation of symbols are independent of anything outside the system of symbol manipulation. The rules for manipulating the symbols are independent of meaning, independent of attention, memory, any kind of cognition, independent of the body, motor action, independent of Pragmatics. They just in themselves have to exist. They can take no input. Chomsky claims that there is a language organ or a language module that is like this and meets these mathematical conditions. If there were such a thing in the brain, in some part of the brain, it should be a part of the brain that could take no input, because if it took input, the input would

affect it. So it can take no input. There's no part of the brain that has no input. The brain is a set of neurons that are interconnected, in all sorts of ways. A module in the brain is a neural structure that has lots of neural inputs and outputs, and it only functions on the basis of its inputs. There is no such thing as a part of the brain with no input. Therefore, any view of language and Chomsky's, in a sense, that would have to be mathematically characterizable in terms of a system with no input can't exist in biology.

12. Syntax

R - *Since we have reached Chomsky's project and its centrality in syntax, what about syntax in Cognitive Linguistics. Is it bodily motivated?*

L - Yes, exactly. Take for example what I was discussing this morning about aspect, where Narayanan has shown that the linguistic aspect has exactly the same structure and inferential structure as a motor control system, and in fact that the motor control system is characterizing what aspect is. Aspect shows up in Syntax. The aspectual structure of the language depends upon the semantic structure aspect which is coming out of the motor control system in the body. These are not separate systems. There's no independent notion of aspect independent of all the motor inferences that Narayanan[19] has pointed out. Take all of the linguistics spatial relations. As Regier[20] pointed out, they can be characterized neurally only using things like topographical maps and orientation systems in itself. There's no understanding of spatial relations independent of that embodiment and the properties of those spatial relations show up in Syntax. So what you are getting are things in Syntax that are coming out of our neural embodiment and

[19]Narayanan (1997).
[20]Regier (1996).

our understanding of meaning, which is embodied. We don't have a syntax that is independent of that. So, for example, if you take the prepositional system, like you find in English or any other languages, you have a target and a landmark and the neural computation that is done to characterize how they work. They just simply work differently. And if you say what is the difference, it's not an abstract difference. We would say, you have the feature, plus landmark, plus projection... you have to say what's defined in terms of what the neural system does. How it's carried out physically and bodily. Jerry Feldman[21] has a very nice slogan about it. Instead of the poverty of stimulus, he likes to talk about the opulence of the substratum. Given the neural substratum, given all the things that we do with our bodies, there's more than enough to characterize syntax.

13. Computational Approach

R - *I attended your lecture this morning, and it was the first time I heard you talking about the neural and computational approach to language. It is a recent interest?*

L - It's actually been there from the beginning of Cognitive Linguistics. Cognitive Linguistics began for me as soon as I learned about the system of color vision. Where it became clear that the color concepts had to come out of neural systems and that meant that all concepts had to come out of neural systems, as soon as you think about it. I have been learning about neural systems ever since. For the past ten years I've been working with Jerry Feldman on trying to develop this, but I haven't talked about it before because we didn't have enough to say.

R - *Would you define your computational project as a way of creat-*

[21]Jerome A. Feldman. See Shastri & Feldman (1986).

ing a smart machine, or, perhaps, a talking machine? Is this project viable?

L - No, that is not what we are trying to do. We are trying to model scientifically certain aspects of what we do using machines. It's like trying to model the weather using a machine. We are not trying to make the machine replace the weather.

R - *You don't believe in a thinking or talking machine, do you?*

L - No. If it is useful in computer science or if you discover something that is useful for computer technology that's fine. I have no objection to technology, but that's not the point. We are not believing in anything like that, we are trying to understand the human mind and the human brain.

R - *Today, in your lecture, you talked about computations going on in the brain. Would you subscribe to the slogan "the mind is a computer"?*

L - No. That's a metaphor, and I don't think the mind is a computer. One of the things that I am working on now is the metaphorical structure of mathematics. There are two ways that metaphors show up in mathematics. One in the case of grounding of mathematical understanding in everyday life. But the more interesting part is in the actual use of metaphor in mathematics itself, for example, when you understand numbers as points on a line, or numbers as sets. These are useful metaphors. The main thing about metaphors is that metaphor preserves inferences. That's the main property of metaphor, which explains why they would be useful in mathematics. Now, there is a mathematical theory of computation, and there is a way of implementing it. Just as mathematics uses metaphor, we use metaphor, for example, when you describe neural computation and any biologist talks about neural circuit, he is using a metaphor in which the dendrons and axones are connections in which their neural units parallel in a circuit. And you are saying that the kinds of function performed by the brain have to do or are adequately described by this metaphor even though the biology itself is infinitely more complex. We are saying that

the metaphor describes certain functions when you do a certain neural circuit. Connectionism uses a metaphor for neurons. Now, once you do that, you have a theory of the computational properties of connectionist models in terms of neural computations. So we have a computational metaphor for the electric circuit model of the neuron. We also can use the computational metaphor to describe certain aspects of Cognitive Linguistics. Now, there's nothing wrong with any of this. It is part of science. You want to understand certain things and turn to some other things. The issue is "How much it is explained". Can you explain for example how is it possible for neurons to think and have language. If you can so you've been successful. That is the way metaphor becomes useful scientifically. If you can not do that, then they are not useful. It is an explanatory scientific enterprise. We are not trying to build computer models that would do things, now if it happens, as I said, that's fine, but that is not our goal.

R - *Fodor claims that the mind is (really) a computer. He is not being metaphorical.*

L - Ok, the term 'computer' has more than one meaning.

R - *And 'metaphor' as well*

L -Right! Exactly. So the question is this: If by a computer you mean an abstract mathematical device that defines computations and it's a metaphor for the mind , then the only question is whether it is an apt and useful metaphor for the mind. We believe that at the neural level it is, that is, for neural computations we think that it is an useful metaphor for the mind. But at higher levels it may or may not be. Now, maybe at some higher levels, too. We don't know. But you have to ask what it is you were using, what aspects of the mind you are modeling. Are you modeling a neural structure, if so no, doubt. The understanding of neural connection in terms of the computational metaphor is useful.

R - *I think everyone would agree with this, don't you think so?*

L - Yeah, I think so.

R - *What seems to be controversial is whether we are talking metaphorically, and if so, then what we are doing is some sort of the fiction...*

L - Metaphor is not a fiction.

R - *Right! But when Fodor claims that the mind is really a computer, he is attributing to metaphor some kind of fictionality.*

L - That's correct!

R - *That's is not your point, but that is the way he is using the term 'metaphor'.*

L - Yes, he is using metaphor as if it were necessarily fictional. And there is a reason, because he believes in a correspondence theory of truth, so he has to use the term metaphor in that way. But that's not how metaphor really works.

14. Formal Theories, Are They Useful?

R - *Would you say that linguists do not need formal approaches to language? Should we stop teaching formal semantics and logic?*

L - I think that's ridiculous. First of all, I think formal logic is a very beautiful thing. It is part of history. I think it is a magnificent thing. To understand where we came to in this view, you have to understand what formal logic is. It would be criminal not to teach it. I think to appreciate what Cognitive Linguistics is it is important to know what formal logic is and where it fails. It fails for many reasons, but it is important as a tool. First of all, it is an important starting point. It led to the discovery of cognitive linguistics. Generative semantics was formal linguistics. It was methodologically very important to be able to write certain things down, and to have them straight at that period in history. For the sake of understanding history and understanding how these insights came about, you must teach things you do not believe just as generative linguists who were responsible and had

to teach structural linguistics.

R - *Don't you believe logic is a tool, that formalization is very important?*

L - First of all, there is a difference between formalization and logic. As a scientist I am not against formalization, here I am doing all this stuff on whole structures, formalizing the best I can. The question is formalization is a tool and it can be a very useful and an important tool. That is not what formal linguistics is about. Formal linguistics says that the tool is the theory. That is false. It's a tool. It is useful to use it. I certainly I am not against using formal methods, I use them all the time.

15. Theories

R - *Cognitive Linguistics holds that the basis of meaning is embodiment. I believe this is a very interesting and powerful hypothesis, but sometimes I have the impression that the body is just an organism.*

L - No, is it not just a nice idea. There is an evidence for it. If you look at the meaning of color, you have to look at the physiology of color vision, at the neural physiology of color vision. It shows you that there is no color out there in the world. So if you cannot be an objectivist about this, you are no longer an empiricist about colors. But colors do come out of your body so you can not be irrationalist about color concept, either. There is no way of being either of the traditional things, just taking the small amount of data about the nature of color. Color is a very simple example, because it avoids a lot of the complexity, and you can see right there that both rationalists and empiricists are wrong about color. And that is not simply a matter of having a nice idea that things are embodied. Color is embodied. The same is true with basic level categorization and spatial relation and all sorts of other things including metaphor. And now we know aspect. So, once you see that it

is the evidence that is compelling, it is not just a nice idea.

R - *Well, I could always reply that evidence is a function of the theory, data is also a function of the model that you are building in.*

L - What do you want to do? By the way, this is all discussed in that book that is on tape.[22] Actually it is in the preface. What you want to do is having something that minimizes the effect of your subjects, the results. How do we do that? There are certain kinds of methodological assumptions that would minimize the effect of subjects. One of them is to take data from a wider, wider areas, because the wider the kind of data you are considering, the more kinds of data you consider, the less likely that the choice of data will determine the theory. That's the first assumption. The second is you want to look for generalization over the data, because the more data you have to generalize over, the less likely it is that generalization in any particular area of data will determine the theory. The third thing you want to do is look for convergent evidence with methodologies that make different assumptions, because then they cancel each other out. When you study metaphor, for example, we have nine different forms of convergent evidences, each has a different set of methodological assumptions. So that means that it is less likely that any one set of methodological assumptions will determine the theory. When you do all these things, which is what we do, then it is less likely that you determine the theory. Each time you add another source of evidences, it makes much harder to say that your assumptions are determining the theory.

R - *Thanks a lot again for 'spending' your time with this interview. Hope you still have a great resource of time... Wouldn't you like to come to Brazil?*

L - I'd love to, ...

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[22] Lakoff & Johnson (1997, to appear).

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