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A new look at our old (and not so old) philosophy

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George Lakoff and Mark Johnson: *Philosophy in the Flesh. The Embodied Mind and its Challenge to Western Thought*. New York: Basic Books, 1999. ISBN: 0-465-05673-3. US$ 30.00

0. INTRODUCTION

The Theory of the Conceptual Metaphor (CMT) is one of the first and most important developments in Cognitive Linguistics (CL). *Metaphors We Live By* (Lakoff & Johnson 1980) was the first whole book devoted to CL and several important domains of human conceptualisation and language have been studied with the constantly enriched tools of CMT: poetic metaphor and language (Lakoff & Turner 1989; Gibbs 1994), political thinking (Lakoff 1996), mathematics (Lakoff & Núñez 1997), emotions and especially love (Kövecses 1987, 1988, 1990; Barcelona 1992; Martín Morillas & Pérez Rull 1998), linguistic change (Sweetser 1990), gestural language (McNeill 1992) to mention just some especially important works. It is nowadays included in linguistic and cognitive research of many types (see e.g. Edelman 1992, esp. the Epilogue: "Mind without Biology: A Critical Postscript", pp. 211-252, 'pro'-Lakoff and Langacker and against Chomsky[1]; Damasio 1994; Palmer 1996, chapter 8, on its applications to the cultural study of language; Werth 1999 as an instance of its integration in a cognitive theory of discourse and the text).

Now, in this new and much expected work, George Lakoff and Mark Johnson (from now on, they will be referred to as L&J) analyse philosophical thinking with the tools of CMT. This 624 pages long book is organised into

four parts and 25 chapters. As it is impossible to render full justice to such a long, enriching book in the few pages of a review, I shall limit myself to a general characterisation of the four parts, a discussion of the main ideas in some of its central chapters, and a few observations on some issues which are of special significance for cognitive (and) linguistic research.

1. AN OVERVIEW OF CMT

Part I (pages 3-129) bears the title "How The Embodied Mind Challenges The Western Philosophical Tradition". It introduces the foundations of CMT, centred on three main points: (a) the Cognitive Unconscious, (b) The Embodiment of Mind, and (c) Conceptual Metaphor.

1.1. The Cognitive Unconscious

According to the idea of the Cognitive Unconscious, most of our thinking "operates beneath the level of cognitive awareness, inaccessible to consciousness and operating too quickly to be focused on" (p. 10). Philosophical and phenomenological reflection are not free from this limitation: they cannot "adequately explore the cognitive unconscious" (p. 12) because "philosophical theories are largely the product of the hidden hand of the cognitive unconscious" (14). Another important consequence, central to the whole enterprise represented by this book, is that our understanding of the functioning of our minds will be of immediate relevance for our understanding of the way in which philosophical theories are created, developed, and discussed. But we can only approach the functioning of the mind through empirical research; i.e., the empirical research on the mind, cognitive science, is of extreme importance for the understanding of philosophical thinking. However, "philosophy has seen itself as being independent of empirical investigation. It is that aspect of philosophy that is called into question by results in cognitive science" (15).

Now, the importance of empirical research for philosophical thinking is universally accepted in all kinds of studies concerning the 'essence' of matter, i.e., the ultimate physical component of reality: it would make no sense to continue the old discussions on the atom while ignoring the results of research in the physical sciences. No purely philosophical, merely introspective study of the physical world is possible unless the results of scientific research are taken as its base. Why should not the same be true for the 'ultimate reality', the 'essence' of thinking and, consequently, of philosophy itself? If the cognitive sciences provide us with some firm conclusions on the "Matter of the Mind",

is it still possible to continue with the same traditional form of philosophical thinking? Some, perhaps many of the questions traditionally posed by philosophers may have found an answer in the research of the cognitive sciences, so they would have to be restated or, maybe in some cases, even abandoned. This can be seen as one of the main purposes of this book.

1.2. The Embodied Mind

Our mind is embodied, i.e., it depends on the conditions and limitations imposed by the physical existence of human beings. L&J claim "that the very properties of concepts are created as a result of the way the brain and body are structured and the way they function in interpersonal relations and in the physical world" (37). *Embodiment* is of course a familiar concept in the contemporary cognitive sciences; the obvious references are Johnson (1987) and Varela, Thompson & Rosch (1991), who observed: "By *embodied*, we mean reflection in which body and mind have been brought together. What this formulation intends to convey is that reflection is not just *on* experience, but reflection *is* a form of experience itself" (p. 27). The idea is gaining much ground and also Umberto Eco's (1997) rather different framework offers an account of human cognition which can be identified as 'embodied'. On the other hand, the roots of this view of cognition as depending on the structure of our bodies and their experience in the interaction with the world clearly go back to the philosophical proposals of Merleau-Ponty (see 1947 -and the interesting discussion included there- and 1962) [2]. Finally, the work of such cognitive scientists as Edelman (1992) and Damasio (1994) follows similar lines, as human cognition is seen as depending on the structure and activity of the brain and the whole body in its interaction with the external world, and as (co-)determined by it.

Embodiment has very important consequences for the analysis of thought and philosophy. Western philosophy, in fact, has traditionally purported a disembodied mind (best but not only represented by Descartes' philosophy); but "the very properties of concepts are created as a result of the way the brain and body are structured and the way they function in interpersonal relations and in the physical world" (37).

L&J see the embodiment of the mind in rather 'materialistic' terms as dependent on the physical matter of the mind (neurons, neural networks and groups, etc.) and the nature of our sensorimotor experience: "human concepts are not just reflections on an external reality, but ... are crucially shaped by our bodies and brains, especially by our sensorimotor systems" (22); they are embodied concepts, defined as "*neural structure[s] that [are] actually part of, or make use of, the sensorimotor system of our brains. Much of conceptual*

inference is, therefore, sensorimotor inference" (20). But then, "the philosopical consequences are enormous. The locus of reason (conceptual inference) would be the same as the locus of perception and motor control, which are bodily functions" (20). In fact, recent research on brain activity with Positron Emission Topography (PET) and Functional Magnetic Resonance Imaging (FMRI) shows that neighbouring brain areas are activated when perceiving and when thinking and speaking, which is interpreted as a support to the theory of the embodiment of the mind (Martin 1998, see esp. p. 85).

Embodied cognition is directly responsible for the creation of *basic-level categories* which form the basis for categorisation and reasoning. The basic level is "the highest level at which we have mental images that stand for the entire category" (27) and "at which category members are recognized by gestalt perception" (28). This means, of course, that the 'category' is seen in a way that does not fit its traditional (ultimately Aristotelian) definition. Categories cannot be seen as mere reflections of what exists in external reality, but as the product of our embodied thinking; their function is to enable us to act optimally in the world, and its creation occurs unconsciously. This means, amongst many other things, that the search for the 'real' categories existing outside ourselves makes no sense: the search for the 'real' essence of colours, for instance, is a case in point (analysed in pages 23-26), as colour concepts such as 'red', 'yellow' or 'blue' are only a consequence of our perception and categorisation [3]. The study of categories is the study of how human beings categorise, of how our categorisation constructs embodied concepts and relates them, which of course does not mean, however, that the existence of 'external reality' is rejected.

The issue was already dealt with in length by Lakoff in his 1987 book, where a discussion of the impossibility of the classical categories -as representing what 'really' is out there, waiting for our minds to 'reflect' it- can be found. The traditional 'objectivist' view of the categories [4] is therefore rejected, but this means at the same time the rejection of much that has gone basically unchallenged in Western philosophy for many centuries.

Nowadays, however, the rejection of this objectivist viewpoint is widespread. Eco (1997) is an interesting case in point, as he devotes his whole book, in fact, to a reinterpretation of categories and category-formation in terms which are fairly close to L&J's.

The implications of the basic level for philosophy are characterised by L&J in the following terms (pages 28-29):

> First, the division between basic-level and nonbasic-level categories is body-based, that is, based on gestalt perception, motor programs, and mental images. Because of this, *classical metaphysical realism cannot be right*, since the properties of categories are mediated by the body rather than determined directly by a mind-independent reality.

> Second, the basic level is that level at which people interact optimally with their environments. (...)
>
> Third (...). *Metaphysical realism seems to work primarily at the basic level*. (...)
>
> (...) There are basic-level actions, actions for which we have conventional mental images and motor programs... We also have basic-level social concepts, (...), as well as basic-level social actions (...). And there are basic emotions. (...)
>
> Fourth, the properties of the basic level explain an important aspect of the stability of scientific knowledge. *For basic-level physical objects and basic level actions or relations, the link between human categories and divisions of things in the world is quite accurate*. (...)
>
> For basic level categories, the idea that our categories of mind fit the categories of the world is not that far odd. (...). *Basic-level categories are the source of our most stable knowledge*. [italics added]

But then, how do we reason beyond the basic level? L&J's answer is the third main point in this part of the book

1.3. Conceptual Metaphor

The definition of this concept is well-known since Lakoff and Johnson (1980) and Lakoff (1987; 1990 [5]); in this book, however, it has been further developed and much detailed, and it is given further support by experimental (i.e., empirical) research. The foundations of conceptual metaphor are well known: "much of the way we conceptualize [abstract concepts], reason about them, and visualize them comes from other domains of experience. These other domains are mostly sensorimotor domains. (...) The cognitive mechanism for such conceptualizations is conceptual metaphor" (45). This is to be understood again in materialistic terms, that is, as having its base in the neural functioning of the brain. Associations are automatically established between domains which are activated together during learning (this is called Johnson's *theory of conflation*); then, "[t]he 'associations' made during the period of conflation are realized neurally in simultaneous activations that result in permanent neural connections being made across the neural networks that define conceptual domains" (this is called Narayanan's *neural theory of metaphor*) (46). The relation between this view and Edelman's Theory of Neural Group Selection seems obvious (see Edelman 1992, Thelen & Smith 1994) and seems also to be supported by such work as that summarised by Martin (1998). Further experimental studies have convincingly shown that metaphorical and non-metaphorical expressions are processed at the same speed, in opposition to the traditional view that a 'literal' interpretation of metaphors must be carried out prior to the 'metaphorical' interpretation proper (Gallego 1996; Ortiz de Zárate 1996).

A clear differentiation is made between *primary* and *complex* metaphors. The creation of the primary metaphors is jointly studied by four subtheories: 1) Johnson's *theory of conflation* in the course of learning, 2) Grady's *theory of primary metaphor*, according to which "All complex metaphors are "molecular," made up of "atomic" metaphorical parts called *primary metaphors*. (...) Complex metaphors are formed by conceptual blending". 3) Narayanan's *neural theory of metaphor*, mentioned above, and 4) Fauconnier and Turner's *theory of conceptual blending*: "Distinct conceptual domains can be coactivated, and under certain conditions connections across the domains can be formed, leading to new inferences" (47).

That is, our experiences provide us automatically with primary metaphors which are then combined to form complex metaphors, which should form the basis for abstract reasoning, including philosophical reflection. The overall conclusion to be drawn is that philosophical thought is basically metaphorical and ultimately determined by the structure and functioning of our brain in its constant relation with experience. There is no place for any form of thinking independent of the body, or any hope of getting to a knowledge of the world by mere introspection.

If all this is true, Western philosophy will have to follow some new paths because, to state it bluntly, L&J's hypothesis amounts to saying that the philosophers have not been doing what they thought they were doing. The philosophers started from the premise that whatever existed was characterised by its specific essence, that things (including morality, the mind, etc.) existed independently of us (i.e., of our conceptualisation of them) and that the only way to analyse them was by means of introspection, i.e., through philosophical reflection. But now, if L&J's approach is true, the famous problem of the observer reappears in a much more dramatic way than when it was first stated in connection with Quantum Mechanics: the only possible access to reality is our perception of it, which is determined by our bodily configuration and our experience. What we think we are saying about reality 'itself' is just in fact about what we perceive and conceptualise, and our reflections on the essence of reality (including metaphysics, morality and ethics, etc.) are ultimately reflections on ourselves.

This, on the one hand, could seem to reduce the importance of philosophy (on which see below); but on the other hand, it in fact enriches philosophy, as all its endeavours can be summarised in Socrates' (Plato's) famous phrase: *know yourself*.

But of course the question arises: Are these conclusions justified? Or are they just the tenets of another philosophical theory? Of course, many coincidences with some philosophers' ideas can be found, and the relation with Locke's and Hume's philosophical systems may seem striking. There is a great difference, however: L&J base their proposal not on introspection but on

empirical research; and they emphasise that their approach is not based on any *a prioris*; CMT, for instance, was never 'looked for' but 'found' as a result of the empirical analysis of language and, subsequently, of other cognitive systems.

As for the justification of their main tenets, a large number of cognitive scientists flatly reject these positions. L&J are conscious of the situation and analyse the differences between "first generation" and "second generation" cognitive science (their proposals belonging to the second generation). I cannot but agree with their analysis (pages 75-88): they show the second generation cognitive science to be supported by convergent evidence coming from the independent study of different subjects related to mind and language: "Inference Generalization" ("The main function of conceptual metaphor is to project inference patterns from one conceptual domain onto another", p. 82), "Polysemy Generalizations" (82), "Novel-Case Generalizations" ("Novel-case generalizations are extremely important for showing that the metaphorical mapping is alive, not dead", p. 82-83), "Psychological Experiments" (83-85), "Historical Semantic Change" (85), "Spontaneous Gesture Studies", "Language Acquisition Studies" (86), "Sign Language Metaphor Studies" (86) and "Discourse Coherence Studies" (86).

Second-generation, as opposed to first-generation, cognitive science is *not* based on a set of a priori expectations concerning the structure and functioning of the human mind. Its results, e.g., the role of conceptual metaphor, are derived from the empirical study of data; they are thus not the point of departure, but the point of arrival of their research. We shall see later that this point is of extreme importance for the understanding and criticism of Chomsky's philosophy and linguistics.

Aproaches such as L&J's and in general 'second-generation cognitive science' are usually obviated by 'first-generation' cognitive scientists, especially in linguistics [6]; this means that no two-way discussion can take place, although some exceptions do exist: some of the articles included in Gleitman & Lieberman (eds., 1995) and Smith and Osherson (eds., 1995) do incorporate conceptual metaphors as a part of the human conceptual system.

It also may be interesting to note that within the "generative enterprise" itself, Ray Jackendoff has made some proposals which appear to be much closer to 'second-generation' cognitive science and linguistics than to Chomsky's extreme objectivism. Jackendoff (1997, chapter 8) tackles the problems posed by the independence of language and thought and the fact that brain phenomena, including thought, are "opaque to awareness", thus approximating L&J's idea of the Cognitive Unconscious. He proposes that only some of the "levels of representations" are accessible to our conscience, which seems rather compatible with Varela, Thompson & Rosch's approach (see above); Eco's (1997) model of a variety of basic forms of conceptualisation (*Cognitive Type*,

Core Content, and *Molar Content*; see chapter 3) is not too far from the same basic idea. Jackendoff's positions seem to be close enough to those of L&J, although he finds some important differences, too (Jackendoff 1996; see also the discussion in the other articles of the same issue of *Cognitive Linguistics*).

In short, studies of cognition undertaken from different disciplines seem to lend support to L&J's basic ideas: biology, AI, psycholinguistics, linguistics; and within each of these disciplines, research done with different purposes and methods seems to point in the same direction. L&J (79-80) sum up the main commitments for "an empirically responsible inquiry":

> *The Cognitive Reality Commitment*: An adequate theory of concepts and reason must provide an account of mind that is cognitively and neurally realistic.
>
> *The Convergent Evidence Commitment*: An adequate theory of concepts and reason must be committed to the search for converging evidence from as many sources as possible.
>
> *The Generalization and Comprehensiveness Commitment*: An adequate theory must provide empirical generalizations over the widest possible range of phenomena.

1.4. Philosophy as metaphorical thinking

Thinking is possible in literal, i.e., non metaphorical terms: "There is a vast system of literal concepts, for example, the basic-level concepts and the spatial relations concepts. All basic sensorimotor concepts are literal" (58); but most of our abstract thought seems to be metaphorical; in fact, metaphors "are there" to allow us to think at a deeper level: "Perhaps the most important thing to understand about conceptual metaphors is that they are used to reason with" (65). Concepts which are basic for human life are fundamentally metaphorical: love, cause, the mind, morality, the self; these concepts are analysed in the Second Part of the book. An important point, which has been the object of much attention, is the composite character of the metaphors used for our conceptualisation of the most complex and important notions: we do not have one single metaphor for love or causality, for instance, but a (frequently large) number of different metaphors which corresponds to many different source domains. That is, whenever we try to understand a complex notion, we use our knowledge of a number of other domains (which in its turn will also be metaphorical to a large extent). Philosophy, as (the highest?) form of abstract thinking, is also basically metaphorical:

> In philosophy, metaphorical pluralism is the norm. Our most important abstract philosophical concepts, including time, causation, morality, and the mind, are all conceptualized by multiple metaphors, sometimes as many as two dozen. *What*

> *each philosophical theory typically does is to choose one of those metaphors as "right," as the true literal meaning of the concept*. One reason there is so much argumentation across philosophical theories is that different philosophers have chosen different metaphors as the "right" one, ignoring or taking as misleading all other commonplace metaphorical structurings of the concept. *Philosophers have done this because they assume that a concept must have one and only one logic. But the cognitive reality is that our concepts have multiple metaphorical structurings*. A common philosophical response is that no metaphorical structure enters into the concept at all, the concepts are literal and independent of all metaphor" (71) [italics added].

A last, but extremely important consequence of L&J's approach is that our concept of *truth* has to change. The traditional theories of truth are inadequate because they state the problem itself in the wrong terms: their point of departure is "the assumption that truth is a matter of correspondence between symbols and a mind-, brain-, and body-independent world" (99). Of course, modern linguistics and other cognitive sciences have found it impossible to work in their own terms while keeping to that traditional definition of truth. But if we cannot get access to the elements of reality except through the mediation of our perception and our embodied conceptualisation and, in most cases, through metaphor, how can truth be defined? L&J analyse the issue in Chapters 7 and 8 and propose the new concept of *embodied truth*, which they define as follows: "A person takes a sentence as "true" of a situation if what he or she understands the sentence as expressing accords with what he or she understands the situation to be" (106). This definition is rather close to Varela, Thompson & Rosch's approach to the concept of truth in terms of traditional Buddhist philosophy (1991: 226-228). They also make quite clear (p. 229ff) that this embodied and relative concept of truth is not to be confused with the purely subjective status of truth as seen by some postmodernist philosophers. L&J (see esp. pages 88-89) are also careful to distinguish between their own approach and postmodernist thinking. They also devote some pages to the comparison between conceptual metaphor and the traditional theories of (literary and linguistic) metaphor.

2. THE COGNITIVE ANALYSIS OF SOME BASIC PHILOSOPHICAL IDEAS

The Second Part of the book (pages 131-334) analyses some concepts that have been the object of philosophical reflection through the centuries: Time, Events and Causes, The Mind, The Self, Morality. For each concept, they introduce their metaphorical structure, i.e., they show how our conceptualisation is based on a set of sometimes mutually inconsistent and even

contradictory metaphors; or, in other words, that these (extremely) complex concepts are understood in terms of other, simpler domains of experience. It is impossible to try to summarise these two hundred pages, so I shall limit myself to a brief description of what L&J set out to do in this part of their book.

For each concept, they first identify an area of (direct, "physical") experience which can be taken as the basis for the different primary metaphors used and for the complex metaphors which, in fact, form the main part of the argument. This procedure is not new, it is in fact the usual one when analysing concepts of any type in the terms of CMT. Some of the chapters in this second part incorporate and develop previous work by the authors themselves or others (e.g., the self, morality, time). L&J add some interesting details to those previous analyses and, more important, develop the philosophical consequences that have to be derived from their study: "We believe that a detailed study of the cognitive science of philosophical ideas drastically changes our understanding of philosophy as an enterprise and should change how philosophy is done as well as the results of philosophical inquiry" (136).

Philosophical inquiry, according to L&J, seems to consist basically in the creation or selection of one metaphor as best characterising the concept and drawing all the possible inferences from it. A full philosophical development of the concept of 'cause', for instance, would include the exhaustion of these inferences, which usually leads to the creation or adoption of further metaphors, thus creating quite complex (and beautiful) conceptual structures.

L&J also consider the implications of the metaphorical structure of these concepts for, let's say, our every-day life. To mention just two examples, they show —very convincingly, in my opinion— how the traditional metaphor TIME IS MONEY is 'reified' in institutions leading to such proposals as creating regulations to avoid 'time-theft' by employees (164-166). Although L&J allude to the American situation, the idea that job-absenteeism is a form of 'stealing time and consequently money' is also overall present in our own country. Similarly, the metaphor EVOLUTION IS THE SURVIVAL OF THE BEST COMPETITOR (560-561) leads among other things to the selective funding of schools according to the quality of their results (and consequently to privatisation, lack of funding for schools in poor areas, etc.). In fact, the Fourth Part of the book is largely devoted to the consequences derived from the selection of one of possible metaphors as best characterising the 'essence' of particular concepts.

Of special interest for philosophy but also for linguistics is the short chapter devoted to the concept of the Mind (235-266), as it plays a crucial role in contemporary linguistic thinking; in fact, many of the differences between the 'formal' and the '(functional-)cognitive' approaches to language depend on our concept of the Mind. L&J's study of Anglo-Saxon functionalist philosophy leads to the identification of two main metaphors: THE MIND AS

COMPUTER METAPHOR, and THE REPRESENTATION METAPHOR. According to the first, which is extremely popular and frequently taken as 'an absolute presupposition', the brain is understood as a computer, the mind as a computer program, the concepts are identical to the formal symbols, human memory is the same as a computer database, etc. According to the second metaphor, the meanings of concepts are taken to be the same as the "relations between formal symbols and things in the world" (257). Symbol manipulation, on its turn, is developed in other metaphors: THE FORMAL LANGUAGE METAPHOR and THE SYMBOL MANIPULATION METAPHOR. The example is easily accessible as we are so much used to it: it is frequently taught at schools and universities [7] as if these metaphors did represent the 'essence' of the Mind, i.e., as if the Mind really were a computer. This would be the same as saying that a computer virus is really a virus, i.e, "any of a group of submicroscopic entities consisting of a single nucleic acid..." [8]. This is sheer nonsense, of course, but apparently we feel much more inclined to see ourselves in terms of machines than to understand machines in terms of biological entities; while the philosophers rather readily adapted their reflections to the discoveries about the atom, they have traditionally been rather renuent to accepting not only the results of, but also the need for empirical research on the mind and their significance for their own enterprise [9].

As already said, the content of these pages is too rich to attempt even a brief summary of each of the analyses. I thus recommend the reader to read this Second Part of the book and reflect on L&J's characterisations of the concepts and their conclusions as to their consequences for philosophical (and other) thought.

3. THE COGNITIVE ANALYSIS OF PHILOSOPHICAL THEORIES

In Part 3 (335-548), L&J use the 'cognitive science method' to analyse the metaphorical structure of some especially significant philosophical theories of the Western World: The Pre-Socratics, Plato, Aristotle, Descartes, Kantian morality, Analytic philosophy, Chomsky's philosophy, and The theory of rational action. Again, the content is too rich for a summary. In my view, they manage to show in a convincing manner the metaphorical organisation of these theories and —for some of them— their beauty. Seeing the difference between Plato's and Aristotle's philosophies in terms of the basic metaphor selected, resp. THE ESSENCES ARE IDEAS METAPHOR *versus* THE IDEAS ARE ESSENCES METAPHOR may seem reductionistic, but in fact it is not. The inferences that Plato and Aristotle derived from these metaphors are shown to build up the whole of their philosophical systems, including politics, ethics, aesthetics and logics.

Western philosophy begins with a few *Folk Theories* that guide everybody's life and that set the basis for the Presocratics' reflections (which still hold today): THE FOLK THEORY OF THE INTELLIGIBILITY OF THE WORLD ("The world makes systematic sense, and we can gain knowledge of it" 347), THE FOLK THEORY OF GENERAL KINDS ("Every particular thing is a kind of thing" 347), THE FOLK THEORY OF ESSENCES ("Every entity has an 'esence' or 'nature', that is, a collection of properties that makes it the kind of thing it is and that is the causal source of its natural behavior" 347), as well as the folk theory that will lead to our questioning about 'being' itself: THE FOLK THEORY OF THE ALL-INCLUSIVE CATEGORY ("There is a category for all things that exist" 349). L&J's observations on the concept of 'being' and its discussion in the various philosophical systems are not isolated; to mention just one example, Eco (1997, chapter 1) reaches rather similar conclusions, especially in his analysis of Aristotle's and Heidegger's metaphysics (although Eco does not use CMT, he does consider the results of cognitive linguistic research).

Philosophy proceeds thus from a few questions asked on the basis of these folk theories and advances through the creation of new metaphors and the drawing of inferences. In L&J's presentation, the development of the philosophical systems analysed in this part of the book can be seen as a constant aesthetic progress: the beauty of each theory and its relations to the preceding theories is highlighted in this extremely lucid presentation. This part can be seen as a response to those who might think that interpreting the philosophical systems as metaphorical would amount to underestimating their achievements.

Only when dealing with analytic and chomskyan philosophy do L&J adopt a very critical approach. Both are seen as developing some of Descartes' metaphors for the mind. As the analysis of Chomsky's thinking may be of special interest for linguists (and, I hope, others too) I shall dwell briefly on it.

Chapter 22, "Chomsky's Philosophy and Cognitive Linguistics" (pages 469-512) is devoted to the analysis of Chomsky's basic philosophical assumptions, which are shown to guide his linguistic thinking, too, and to a comparison with the cognitive linguists' proposals. This is not the first time that Chomsky's thinking is analysed in the relations between his (e.g., political) philosophy and his linguistics, but of course this is the first example of a metaphorical analysis.

Chomsky's linguistics is based on Descartes' theory of the mind (and consequently, on his metaphors): The "basic tenets of Chomsky's linguistics are taken directly from Descartes. The only major tenets of Descartes that Chomsky rejects are the existence of mental substance and the idea that reason/language is all conscious and that its workings are directly available to conscious reflection. Indeed, Chomsky deserves enormous credit for helping

to bring into cognitive science the idea of the cognitive unconscious as it applies to grammar" (472). The basic metaphors that serve to explain Chomsky's linguistics are A NATURAL LANGUAGE IS A FORMAL LANGUAGE [10], and THOUGHT IS MATHEMATICAL CALCULATION.

Now, what is most important in the analysis is that all the major tenets of Chomsky's linguistics are based on philosophical *a prioris*, not on the observation of language; it is in fact more of a philosophical system than a linguistic model:

> *Chomsky's view of linguistics represents an amalgam of certain previous philosophical programs*. Chomsky has blended parts of Cartesian philosophy with parts of formalist philosophy to form a philosophical worldview that has persisted throughout his career, despite extreme changes in his specific linguistic theories. His early transformational grammar was a reintepretation of the linguistics of his teacher, Zellig Harris, and over the years he has incorporated additional elements of Harris's linguistics, as well [as] ideas from Roman Jakobson, John R. Ross, James McCawley, Paul Postal, George Lakoff, and others with whom he has had fundamental disagreements.
>
> In understanding Chomsky's linguistics, it is crucial to recognize that Chomsky's *philosophical assumptions are paramount. They are taken for granted throughout his work and are not subject to question* (470) [italics added].

This has dramatic consequences:

> Because of its philosophical status, no empirical finding about natural languages could, in principle, affect this characterization of "syntax" or "language." Any putative finding suggesting that syntax is not autonomous cannot really be about "syntax" or "language" in Chomsky's sense, and so must be attributed to some other faculty or theoretical component. Chomsky's term *core grammar* applies to what is covered by his theory of "syntax." Anything outside of Chomskyan "syntax" is outside of "core grammar" and thus not part of what Chomsky's theory is about (477).

If this has always been true (see for instance Bernárdez 1995: chapter 2, on the impossibility of linguistically falsifying Chomsky's linguistics), it is even clearer now with the Minimalist Program which only endeavours to identify the conceptual minimum for the existence of language —as it is understood in this philosophical background—, leaving practically no room for the analysis of real data. Even Jackendoff could partly share some of L&J's comment, for instance the purely philosophical character of the primacy of syntax: "*[T]here is no linguistic argument for syntactocentrism*. To be sure, syntactocentrism has successfully guided research for a long time - but it is still just an assumption that itself was partly a product of historical acccident." (Jackendoff 1997: 19; italics in the original).

L&J then analyse a number of constructions showing that they cannot be understood in purely syntactic terms and how they are dismissed by Chomsky as not belonging to 'core grammar' (nor, consequently, to UG): "main-clause" constructions in subordinate clauses (483-486) [11], and the coordinate structure constraint (488-493). This analysis leads to a few considerations on the danger of having philosophy leading scientific research.

The integrity of Chomsky's thinking is presented in a lucid way. For instance, his (philosophically based) ideas on language include the consideration of only a few of its aspects:

> There is a reason why "language" for Chomsky does not include poetic language and why his "linguistic universals" do not include a consideration of the sensuality of language, of poetic universals and of the universal capacity to form imagery and metaphor and express them in language. It is also why one finds in his work no serious discussion of the role of culture in language (479).

The same concerns are visible in his philosophical and political opinions:

> In Chomsky's philosophy, rationality and freedom take center stage, while culture, aesthetics, and pleasure (...) play no essential role in universal human nature; for Chomsky, these things simply get in the way of proper politics and have nothing to do with reason and language. The same is true of one's bodily relation to the physical environment or to "lower" animals, which Chomsky, following Descartes, sees as devoid of language and reason and lacking in free will (479).

They end this chapter with the contrastive presentation of the main tenets of Cognitive Linguistics and some extremely critical statements on Chomskyan linguistics: "The philosophical assumptions behind Chomsky's linguistic theory are almost entirely inconsistent with empirical research on mind and language coming out of second-generation cognitive science" (479). "Chomsky's idea of 'syntax' is physically impossible. ... There is no neural subnetwork in the brain that does not have neural input from other parts of the brain that do very different kinds of things" (480) [12]. "To study something scientifically is, for Chomsky, to study it using the methods of formalist philosophy. If it is not formalized using those methods, it is (by the metaphorical version of Church's thesis ...) not precisely formulated at all, that is, not rigorous, and therefore not scientific" (481). "[M]eaning holism applied to the technical terms *grammaticality* and *core grammar* insulates the theory from any... putative counterexamples. What makes this possible is that there is no theory-external constraint in Chomsky's philosophy on what the crucial terms *syntax*, *grammatical*, *language*, and *core grammar* are to mean. What counts as 'syntax' is strictly defined by the philosophy. The other notions can, via the Quine-Duhem thesis and meaning holism, change what they refer to in order to accommodate the philosophy's a priori account of 'syntax'" (488).

4. SOME PROPOSALS FOR PHILOSOPHY AND EVERYDAY LIFE

The last part of the book (chapter 25: "Philosophy in the Flesh", pages 549-568) offers a proposal. Based on the empirical analysis of the human mind, L&J propose an "empirically adequate philosophy": "The question is clear: Do you choose empirical responsibility or a priori philosophical assumption? Most of what you believe about philosophy and much of what you believe about life will depend on your answer" (551).

They confront the "traditional Western conception of the person", characterised by disembodied and literal reason, radical freedom and objective morality (553-554) to the "conception of the embodied person" where reason is embodied and metaphorical, freedom is limited ("since reason is embodied, and since will is reason applied to action, our will cannot transcend the constraints of the body" [556]) and morality embodied as well: there is no "'Higher' Morality: our concepts of what is normal ... originate from the specific nature of human embodied experience. Our conceptions of morality cannot be objective or derive from a 'higher source'" (556). The distinction is relevant even for "the traditional European distinction between the natural sciences and the humanities. What is subject to physical law can be studied scientifically... But, being radically free and not subject to laws of physical causation, the mind is seen as not amenable to scientific study. A different, 'interpretive' methodology is supposedly required for the human sciences. For this reason, cognitive science has not been taken seriously within traditional humanistic fields of study" (554). René Thom's and especially Ilya Prigogine's programmes [13] resound clearly in these words: a new form of looking at nature, including the human being, and at the sciences, both physical and humanistic.

In this chapter, L&J explore some consequences of an empirically based approach to the old philosophical questions: the conception of the person (555-557), selfishness versus altruism (557-561), the spiritual mind (561-568), including the effects of their new views on our daily lives. Again, reading the book is much better than a summary which no review can provide.

The book closes with an appendix (pages 569-583) which summarises "the neural theory of language" to which mention is made in different parts of the book. It includes a much more technical discussion of the results of some research programmes relating cognition and the functioning of the brain, as well as its modelling.

Finally there is a bibliography organised in several sections: Cognitive Science and Cognitive Linguistics, Neuroscience and Neural Modeling, Philosophy, Other Linguistics, and Miscellaneous (pages 584-601) and a very detailed index.

5. CONCLUSIONS

To sum up, this book offers:

1) A state-of-the-art (as to 1999) presentation of some of the most important and influential views on language and cognition, especially but not only Lakoff's Theory of Conceptual Metaphor.
2) A detailed discussion of research on the different linguistic, pyscholinguistic, and AI research on these issues.
3) A very precise exposition of the consequences that the empirical study of cognition has for philosophical reflection.
4) An in-depth discussion of some basic philosophical concepts from the point of view of the cognitive sciences.
5) A deep, clear, entertaining, elegant and beautiful description and discussion of some fundamental philosophical systems of Western culture.
6) A critical analysis of Chomskyan linguistics in relation to philosophy, linguistics and our present knowledge about cognition.
7) A discussion (perhaps too short) of the philosophical consequences of the empirical study of human cognition.

It is probably excessive to say that this book has given a completely new reading of Western philosophy. Many philosophers will probably disagree with much that is written in this book; of course, many philosophers, cognitive scientists and linguists will not be convinced and (needless to say!) most will go on with their usual work using their familiar methods. But I think it would be suicidal to ignore this book, whether one is doing philosophy, cognitive science or linguistics. *Metaphors We Live By* opened a new era in linguistic and cognitive studies when it was published in 1980. The influence of *Philosophy in the Flesh*, nearly 20 years later, will probably be even greater as it affects many more areas. It provides us not only with a new way of looking at the traditional philosophical concepts and systems but, also, new tools that can be applied within a consistent research programme. In summary: this book is a magnificent way of closing the millenium and, especially, of opening up the new one.

NOTES

[1] And see Chomsky's (1995) misleading response, p. 2 and Note 1, p. 10.

[2] There are crucial differences between L&J's (and others') and Merleau-Ponty's understanding of embodiment and its consequences; Varela, Thompson & Rosch (1991) include a detailed analysis of these differences.

[3] The literature on this issue is enormous; see for instance Varela, Thompson & Rosch (1991: 159-171); Palmer (1996: 79-88), and Foley (1997: 150-166).

[4] Werth (1999: 39) offers a compact definition of objectivism: it "is the idea that linguistic (and other) categories correspond in a direct way to entities in the universe. Linguistic categories include, in this view, a set of necessary and sufficient conditions (along with other more specific conditions), corresponding to properties of the real entities in the universe". This is the usual perspective adopted in linguistic studies at least since Chomsky, and it enjoys such a firm and long-standing tradition that "the position is never ordinarily discussed; it is, rather, an absolute presupposition of the generativist approach" (ibidem).

[5] The *Invariance Hypothesis* was originally presented and defined here; see also Claudia Brugman's (1990) discussion in the same journal.

[6] That is to say, for Chomsky and and the vast majority of his followers, what is usually called 'cognitive linguistics' simply does not exist, and "second-generation cognitive science" is just perfunctorily discussed and quickly dismissed.

[7] For instance, this is the 'standard view' of the mind taught at many schools for teachers. Can you imagine the consequences of seeing the children's mind as a computer?

[8] *Collins Dictionary of the English Language*. London & Glasgow: Collins, 1979. S.v., p. 1619

[9] With extreme frequency, philosophers do not even bother to learn about the results of linguistic research... when writing about language. In a recent book (1997) on language written a by a Norwegian philosopher, for instance, the most recent of the extremely few linguistic references is to Benveniste. I prefer not to include that book in my bibliography.

[10] L&J term it "Chomsky's metaphor"; in the same way as other philosophers created novel metaphors on which they built their systems, Chomsky also created his own.

[11] That is, constructions such as *Here comes the bus!, Who on earth can stop Jordan?* etc., which apparently can only be used as main, never as subordinate clauses. L&J show that there *are* counterexamples, as *The Bulls are going to win* ***because who on earth can stop Jordan?!*** and that some pragmatic generalisations allow identifying the conditions that license these constructions for appearing in subordinate clauses.

[12] Chomsky could object to this that the language faculty is the only 'perfect' physical organ and that "[t]he language faculty might be unique among cognitive systems, or even in the organic world, in that it satisfies minimalist assumptions... [T]he computational system ... [could be] biologically isolated" (Chomsky 1995: 221).

[13] See Thom (1980) and Prigogine & Stengers (1986).

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