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Jerry Fodor (1935-2017) †

In Memoriam

Philosopher of the mind and cognitive psychologist: The possibility of a scientific psychology

The interdisciplinary field of cognitive science is in mourning. On 29 November last year, Jerry Fodor passed away at his home in Manhattan. He is universally regarded as one of the field's leading figures thanks to his decisive contributions to the critical-constructive dialogue between disciplines such as philosophy, psychology, linguistics, computing and neuroscience, all of which make up what is known as cognitive science. Trained as a philosopher, he was awarded his doctorate by the University of Princeton (1960) under the supervision of Hilary Putnam and his interest in the nature of the human mind led him to make a post-doctoral visit to Charles Osgood's laboratory of experimental psychology at the University of Illinois. He eventually settled at the MIT as from 1961, where he took part in the linguistic revolution led by Noam Chomsky. At the MIT, first as an associated professor and then as a full professor, he directed the psycholinguistics laboratory, founded the Center for Cognitive Science and worked with both the Department of Psychology and the Department of Linguistics and Philosophy, where he taught various courses on cognitive theories alongside Noam Chomsky himself. He remained there until 1986 when he moved to the City University of New York (CUNY) to take up a post as distinguished professor in the Graduate Center, and from there he went to Rutgers University (New Jersey) as Professor of Philosophy and joint founder, with Zenon Pylyshyn, of the Center for Cognitive Science there (1991). He was to stay at Rutgers until the end of his academic career as emeritus professor in 2016. Fodor was a member of the American Academy of Arts and Sciences, and vice-president and president of the American Philosophical Society, and he earned numerous distinctions such as the first Jean Nicod Prize (France) for philosophy of mind and cognitive philosophy (1993) and the honor of giving the John Locke lectures at the University of Oxford (1997). As well as his numerous publications in the specialized journals of various cognitive disciplines, he leaves a legacy to the scientific community of some 20 high-impact books, some of which are among the most cited works of the last half century of cognitive research (for example, *Psychological Explanation*, 1968; *The Language of Thought*, 1975; *The Modularity of Mind*, 1983; *Concepts*, 1998 and *The Mind Doesn't Work That Way*, 2000, all of which have been translated into Spanish).

With this wealth of experience, it is hardly surprising that Jerry Fodor has been regarded as the prototype of the cognitive scientist *par excellence* (H. Gardner, 1985, *The Mind's New Science: History of the Cognitive Revolution*) and also as the leading figure in the field of philosophy of contemporary psychology (*The New York Times*, 30/11/2017). His initial motivation and main focus of attention was to find a basis for the scientific study of the human mind, to make psychology a truly natural science with its own explanatory power and to go beyond the two types of reductionism that have threatened its autonomy as a science: behavioral-operational reductionism (from the mental to the purely behavioral) and physical reductionism (from the psychological to the neurobiological). In Fodor's opinion, a mentalist (someone who believes in the explanatory reality of the mind) can share the unitary materialist vision of science and, therefore, have no need to accept the mind-body ontological dualism put forward by Descartes.

In his search for an appropriate characterization of the mind, Fodor resorts, on the one hand, to the idea of *intentionality*

espoused by the German philosopher and psychologist Franz Brentano (1838-1917), understood as the property by which something has referential content, and, on the other, to the idea of *computation*, or the formal processing of symbols according to rules, developed by the British mathematician Alan Turing (1912-1954), which was to give rise to the digital world that is now such a part of our environment. Mental machinery, then, was regarded as computational machinery at the service of intentionality. The key part in this machinery was *mental representation* (MR) which, like all symbolic representations, has three characteristic dimensions: *content* or meaning, *form* or the format of the representation and *physical implementation*. By virtue of their content, MRs are the referents of the *mental states* (MSs) related to them, so these MSs (beliefs, desires, motives, plans, etc.) are typically *intentional*; by virtue of their form, MRs can interact and combine with others according to certain rules, which means that the *mental processes* (MPs) that operate on them are typically *computational*. Finally, and thanks to the fact that all MRs have a *physical implementation* (presumably instantiated in something that occurs in the brain), it can be said that both MSs and MPs have *causal consequences* and, therefore, can intervene in genuinely scientific explanations of behavior. This is the base of the Representational-Computational Theory of Mind developed by Fodor and which is one of his great contributions to cognitive science.

Using this general framework, Fodor dedicated much of his work and made highly significant contributions to two main issues. On the one hand, he asked himself what particular type of computational system the human mind is, what cognitive architecture and basic capacities it has, and he established a precise, empirically based distinction between modular and central components, which was to have a considerable impact on subsequent experimental research. And on the other hand, he tackled the problem of intentionality – the fundamental property of the mind – by proposing an atomistic theory of meaning (or content of MRs) that was particularly important for the psychological explanation. Along the way, Fodor took every opportunity to participate in the main debates that have marked the development of psychology over the last 60 years. He took a stand against Osgood and Skinner's behaviorism, Piaget's constructivism, Gibson's ecological perception, connectionist models and Churchland's neuroscientific eliminativism, Block's semantic holism, Pinker's massive modularity, and even the explanatory excesses of natural selection in the theory of evolution (Darwin). His critical and non-conformist attitude to the status quo of cognitive science in conjunction with the force of his critical arguments earned him a reputation as the *enfant terrible* of contemporary philosophy and psychology. Even so, this did not stop the scientific community from recognizing that his critical work has been a fundamental incentive for the healthy development of these disciplines.

Jerry Fodor's death is a great loss for cognitive science. It is also a great loss for the author of this text because we have been in constant touch ever since I had the chance to work under him as a postdoctoral student at MIT 40 years ago. Meeting Jerry Fodor and trying to get to the bottom of his work is one of those experiences that has shaped my own scientific career and my understanding of psychology as a special natural science: a *natural* science insofar as it looks on mental phenomena as genuine manifestations of particular physical/biological systems; and a *special* science in that its level of explanation is not reducible to that of the more basic disciplines (neuroscience, biology, chemistry, physics) even though it is compatible with them. What is more, Jerry Fodor has left an indelible impression because of his passionately (emotionally) intellectual nature and his atypical approach to the teaching of science. As few others have been able to do, he managed to combine rigorous arguments with a direct and colloquial style peppered with humor, irony and a good supply of literary resources. Once he had accepted and duly justified certain premises, he would try to carry them through to their logical conclusion, however provocative or eccentric this might seem. This was not only how he defended new theoretical positions but also how he questioned and shot down theories widely accepted by the establishment in psychology and/or philosophy. Despite being a non-conformist at heart and having a forceful approach to discussing issues, he preferred a thousand times over to say that he did not know (that is to say, to accept that there were some things that he could not explain) than to obligingly give a *relativist* or *pragmatic* response (two of the allegedly intellectual features that he most detested). He was a master of thought (or good reasoning), self-criticism and controversy, always prepared to try to understand the logic of the opposite standpoint, always open to examining counter-examples and seriously considering the arguments against the position he was defending at any particular time. A skilled sailing enthusiast, he enjoyed the challenge of going against the flow, a way of doing things that naturally spread and was picked up by his students. All this aside, Jerry Fodor was, most importantly, a very good man, polite and well mannered, loyal to his friends, quite shy and reserved, which was in stark contrast to his forceful way of speaking and his ability to intimidate those interlocutors he caught unawares. He was a great teacher, a major scientist and a magnificent person without ever claiming to be one. It is such a shame that he has left us. I imagine he will go down in the history of cognitive science as the person who most decidedly attempted to clear up the doubts raised by Immanuel Kant (1724-1804) about the possibility that psychology (as the study of *mental life*) could acquire the status of a scientific discipline.

Thank you, Jerry, for your leadership. Rest in peace.

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Note: This is a photograph of Jerry Fodor from Google: https://www.google.es/