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Ruth Millikan

Ruth Millikan – Logic and Philosophy

The Rolf Schock Prize in Logic and Philosophy for 2017 is awarded to **Ruth Millikan**, University of Connecticut, USA, *"for her ground-breaking theories about biological functions and the biological foundations of thought and language, where the representational properties of the latter are explained in terms of these functions".*

Ruth Garrett Millikan was born in Philadelphia, USA, in 1933. Her mother had a Ph.D. in geology, her father had one in physics, and as an undergraduate Millikan studied philosophy and natural science at Oberlin College. She received her Ph.D. in philosophy from Yale University in 1969, supervised by Wilfrid Sellars, at a time when very few women chose to be philosophers. She started her career working part-time at the University of Connecticut and, in these early years, laid the foundations of her ground-breaking research into biological functions and mental representation. Her most influential book, *Language, Thought and Other Biological Categories,* was published in 1984 and quickly brought her fame, but she chose to remain at the University of Connecticut and has done so for the rest of her career. She was awarded the Jean Nicod Prize in 2002 and then held a lecture series that was published as the book Varieties of Meaning. She has published three more books, more than 70 articles in leading journals and has one book forthcoming, *Beyond Concepts; Unicepts, Language and Natural Information* (OUP).

Millikan's famous book from 1984, popularly called LTOBC, changed the philosophical landscape in several areas: in the philosophy of biology, in the philosophies of mind and language, and in epistemology. So far, it is the most thorough attempt to provide a *naturalistic* account of the human ability to represent our surroundings, in language and in thought, and is the basis of a major contemporary field of research: *teleosemantics.* It's starting point is that if a person is a product of evolution, her cognitive ability must also be.

LTBOC is divided into four parts. In the first, Millikan presents her theory of *proper* functions. In the philosophy of biology, there has long been discussion about how talk of a biological "purpose" should be understood. There is no literal purpose in nature, though it is a central idea in Darwinism that characteristics found in living organisms have been "chosen", selected, because they have a particular function. People also talk about how a characteristic or mechanism does not work "as it should", that it is "faulty"; for example, a heart that cannot pump blood. Millikan proposes that purpose in its biological meaning can be understood entirely naturalistically in terms of a characteristic's historic role, its *selection history.* If the pattern on a butterfly's wing helps some butterflies to survive for one generation by camouflaging them, this helps explain why the pattern is copied to the next generation. The pattern's *proper function* is thus to camouflage the individual. If a characteristic of the heart has helped certain individuals to survive by pumping blood efficiently, this explains why this characteristic is copied to the next generation. Therefore, if a heart's function is faulty, according to Millikan this means that it is not capable of performing the organ's proper function.

In part II of LTOBC, Millikan users her theory of proper functions to explain cognition. If linguistic and mental representations are biological categories, they must also be understood in terms of their "purpose" or proper function. To illustrate this, Millikan uses concrete examples from the world of biology: a beaver slaps the water with its tail and thus communicates "danger!"; bees dance a complex dance and thus inform others in which direction and at what distance there is nectar and of its quality; a frog's optical system informs its tongue mechanism that there is an edible organism in front of it. Watching what happens when bees dance and beavers splash is not adequate – it is possible that a disturbance has meant that it fails; for example, that the beaver slaps the water although there is no danger. To understand what is a mistake, what the signal is really for, you must therefore see the signal's etiology – its stabilising proper function. One of Millikan's central ideas is that the function of the representing system as a whole (that the bees find nectar, the beaver warns others, and the frog catches flies) must be understood in terms of two subsystems: one system that produces the representation *(the producer)* and one system that uses the representation *(the consumer)*. These subsystems (which may be found in one and the same individual, like in the frog) each has a function that contributes to the function of the whole: The producer's function (to produce a tail slap) and the consumer's function (to save the beaver from danger) contributes to the function of the entire system (the beaver's survival). Millikan states that the consumption system cannot work unless the surrounding conditions are beneficial: for example, there must be nectar in the location described by the bees' dance. Millikan calls these *normal conditions,* and she proposes that normal conditions comprise the representation's content.

Millikan also develops a theory of *derived proper functions,* which is intended to explain the content of new signs (mental or linguistic). When a chimpanzee represents a new individual in its surroundings, the chimpanzee's concept for the individual has no evolutionary history. However, the concept has a function (to recognise the specific individual) which is derived from a learning mechanism which has an evolutionary history and, because of this, a *relational* function: to produce something (in this case a concept) that has a special relationship to something else (which the concept will recognise). The more abstract this relational function is, the more the content of a given representation will depend on the individual's specific surroundings and learning history. Derived functions are decisive for the understanding of human language and thought. Linguistic tools, according to Millikan, have derived stabilising functions that explain why speakers continue to reproduce them and why listeners continue to react to their use in a particular way. In part III of LTOBC, Millikan applies her theory to different aspects of language, such as indexical expressions and definite descriptions.

In part IV of LTOBC, in conclusion, Millikan discusses the epistemological and ontological consequences of her theory of representation. She argues for a form of *realism*, which builds on the idea that there are properties or "substances" in the world that have identity conditions that are independent of our linguistic categorisations, carrying a naturalistic theory of knowledge.

In her later texts, Millikan has continued to work with the naturalistic project on several different fronts, partly by presenting a naturalistic theory of concepts, partly by clarifying the project's consequences for epistemology and the philosophy of language. In *On Clear and Confused Ideas* (2000), she develops her realistic theory of substances and presents a theory of concepts in which the central idea is that empirical concepts should be understood as the ability to identify substances and that these abilities should in turn be understood in terms of their biological functions. In *Varieties of Meaning* (2002), she presents a theory of how various types of "purposes" are linked to meaning, specifically how intentional signs (such as a linguistic expression) relate to purpose in general, and to "natural signs" (for example, when we say that dark clouds mean rain). In *Language: A Biological Model* (2005), Millikan

argues against theories in which norms of various kinds are central to meaning, and she presents a naturalistic account of linguistic conventions. In her most recent texts, Millikan also introduces the concept of *unicept* to indicate what she considers to be cognition's absolute foundation: our ability to coordinate widely varying information about an object (e.g. a particular person) or a substance (e.g. milk) and use it to identify this object or this substance. Unlike concepts, which in the literature are often understood as something we share, "unicepts" are private and vary from individual to individual; Millikan links this to psychological research into categorisation. This theory of unicepts, and how it deviates from tradition, is the focus of her upcoming book, *Beyond Concepts; Unicepts, Language and Natural Information*.

Millikan's philosophy spans a number of the central areas of philosophy. The book *Millikan and Her Critics* (2012), which well illustrates her significant influence in contemporary philosophy, discusses her theories from a range of different perspectives – the philosophy of language, the philosophy of mind, epistemology, and ontology. Millikan likes to emphasise that philosophical problems cannot be solved one at a time, instead they often require a new way of approaching major areas in philosophy. Her ground-breaking theory of biological functions and representation comprises one such new approach par excellence. It is for this theory that she is receiving the prize, rather than for an individual work. Even if LTOBC is at the heart of her achievements, she has developed the theory in both her later books and in numerous articles and demonstrated that, to date, it is the most thorough and fruitful naturalistic theory of mental and linguistic representation.

Ruth Millikan was born in 1933 in Philadelphia, Pennsylvania, USA, and received her Ph.D. in philosophy from Yale University, USA, in 1969.

http://philosophy.uconn.edu/faculty/millikan