

BERTRAND RUSSELL (1872–1970)

The logicist philosopher

Bertrand Russell was born on May 18, 1872, in Ravenscroft, Wales. By the time Russell was just four years old, he had lost both his mother and father, and he and his older brother lived with their very strict grandparents (his grandfather, Lord John Russell, was a former Prime Minister and the first Earl of Russell). When Russell was six years old, his grandfather had died too, leaving him and his brother with only their grandmother. At a young age, Russell wished to free himself from the household filled with prohibitions and rules, and this desire, as well as a distrust of religion, would have a profound impact on the rest of his life.

In 1890, Russell attended Trinity College, Cambridge, where he excelled in mathematics and philosophy. Russell initially became quite interested in idealism (the idea that reality is a product of the mind), though years after leaving Cambridge, he would reject idealism entirely, in favor of realism (the idea that consciousness and experience exist independently from the external world) and empiricism (the idea that knowledge comes from sensory experiences from the external world).

The early work of Bertrand Russell focused on mathematics. Russell's defense of logicism (the notion that all mathematics can be reduced to appear as logical principles) was incredibly important, and if it were proven true, it would show that mathematics is legitimately *a priori* knowledge. While his philosophical ideas touched many

subjects throughout the span of his life (including morality, the philosophy of language, metaphysics, and linguistics), Russell always continued working in logic, and wrote a three-volume book, *Principia Mathematica*, to show that all mathematical principles, arithmetic, and numbers stem from logic.

Russell, along with his student, Ludwig Wittgenstein, and philosopher G. E. Moore, are considered to be the founders of analytic philosophy.

Philosophical Definitions

ANALYTIC PHILOSOPHY: Considered to be both a historical tradition and a method of practice, analytic philosophy (which has also become synonymous with logical positivism) is the idea that one should practice and execute philosophy in the same way that one would practice and execute scientific inquiry: with precision and rigor. This is done through the use of logic and being skeptical of assumptions.

Though he was a philosopher, mathematician, and logician, Bertrand Russell first became familiar to people as a result of his controversial beliefs about social reform. Russell was an active pacifist during World War I and attended several protests, which not only got him dismissed from Trinity College, but ultimately landed him in jail. Later, during World War II, while tirelessly campaigning against Adolf Hitler and the Nazi Party, he rejected his pacifist ideas for more of a relativist approach. Russell also became an outspoken critic of Stalin's totalitarian regime, of the United States's involvement in the Vietnam War, and of nuclear disarmament. Bertrand Russell was awarded the Nobel Prize in Literature in 1950.

LOGICAL ATOMISM

Bertrand Russell created logical atomism, the idea that one can break down language into its smallest parts, much like physical matter. Once a sentence has been broken down so much so that those small parts can no longer be broken down, those parts are considered to be "logical atoms." If we then look at these logical atoms, we should be able to uncover underlying assumptions of a sentence and then be able to better determine whether it is valid or true.

For example, let's take a look at the following sentence: "The king of the United States is bald."

This sentence seems simple; however, from it, we can break it down into three logical atoms.

1. The king of the United States exists.
2. There is one king of the United States.
3. The king of the United States does not have hair.

Since we know that there is no king of the United States, the first atom proves to be false. Therefore, the sentence "The king of the United States is bald" is untrue. However, this does not necessarily mean it is properly false, because the opposite of this statement, "The king of the United States has hair," is also untrue. In both cases, it is assumed that the United States has a king. Through logical atomism, we are able to see the validity and degree of truth. This raises the question that is still being debated to this day: If something is not true or false, then what is it?

THEORY OF DESCRIPTIONS

Bertrand Russell's most important contribution to linguistics is his theory of descriptions. According to Russell, truth cannot be represented by common language because it is too ambiguous and misleading. Russell claimed that in order for philosophy to be free of assumptions and mistakes, a different, more thorough, type of language is required. Russell then claimed that this language should be based on mathematical logic and appear more like a series of mathematical equations.

In trying to answer the questions brought on by the sentence "The king of the United States is bald," Russell created his theory of descriptions. For Russell, definite descriptions are names, phrases, or words that pertain to a single, specific object (like "that table," "Australia," or "Steven Spielberg"). If a sentence contains definite descriptions, according to Russell, it is actually a shorthand way to express a group of claims within a series. Therefore, Russell was able to show that grammar obscures the logical form of a sentence. However, in "The king of the United States is bald," the object that is being described is nonexistent or ambiguous (which Russell refers to as "incomplete symbols").

SET THEORY AND RUSSELL'S PARADOX

As Bertrand Russell attempted to reduce all types of mathematics into logic, the notion of a "set" became very important. Russell defines a set as "a collection of members or elements" (in other words, objects). Sets can be defined negatively or feature subsets, which can then be added or subtracted. For example, a set might be all Americans; a set defined negatively might be all things that are

not Americans; and a subset within a set might be all New Yorkers within the set of all Americans.

While Bertrand Russell was not the first person to create set theory (that was Gottlob Frege), Russell completely revolutionized the founding principles of the theory with his introduction of "Russell's paradox" in 1901.

Russell's paradox deals with the set of every set that is not a member of itself. For example, let's look at a set of all of the dogs that ever existed. The set of every dog that ever existed is not also a dog, but there do exist some sets that are members of themselves. If we look at the set that is made up of everything that is not a dog, for example, this must mean that even the set has to be included because that set is also not a dog.

When one tries to think of a set that is made up of sets that aren't members of themselves, the result is a paradox. Why? Because we see a set containing sets that are not members of themselves, and yet by the very definition of the original set (a set that is made up of sets that aren't members of themselves), this means that it must also include itself. However, its very definition states that it cannot include itself, and therefore a contradiction appears.

It is from Russell's paradox that we see the imperfections of set theory. By calling any group of objects a set, situations that are logically impossible can appear. Russell claims that in order to fix this flaw, set theory has to be stricter. Sets, according to Russell, can only pertain to particular collections that satisfy specific axioms (thus avoiding the impossibility and contradiction that can appear from the current model). It is because of the work of Bertrand Russell that all set theory work prior to Russell is known as naïve set theory, and all set theory work after Russell is known as axiomatic set theory.

PHENOMENOLOGY

The study of consciousness

Phenomenology is the study of consciousness and personal experience. Phenomenology started to become a major branch of philosophical study during the twentieth century, particularly showcased by the works of Heidegger and Sartre. However, neither Heidegger nor Sartre would have been able to achieve as much as they did if it were not for the work of Edmund Husserl, the founder of phenomenology.

THE ORIGIN OF PHENOMENOLOGY

Moravian philosopher Edmund Husserl began his career as a mathematician and focused on the philosophy of mathematics. While he originally believed arithmetic followed strict empiricism, through the help of Gottlob Frege, Husserl concluded that certain arithmetic truths cannot be explained through empiricism. In his book, *The Logical Investigations*, Husserl argued against "psychologism," the idea that truths are dependent of the psychology (mind) of an individual, and asserted that truths cannot be reduced by the human mind. From this idea, Husserl began to develop phenomenology.

Phenomenology, according to Husserl, is the idea that consciousness has intentionality. This means that all acts of consciousness are directed at objects, be they material or ideal (such as mathematics). Intentional objects of consciousness and intentional acts of consciousness are both defined through consciousness. In order for one to describe the object of consciousness and content of