ularly explicit by mathematical logic but implicitly followed by all clear thinking). The other point seems to be the ideal of seeing primitive concepts clearly and distinctly (such as Husserl's ideal of "intuiting essences"). In both respects, he considers Hegel to be defective.

From time to time Gödel talked informally about monadology, but it was often unclear whether he was expounding his own views or those of Leibniz. It seems desirable to report these observations, even though I do not fully understand them and my reconstruction of the conversations may be far from accurate. I have already given Gödel's concentrated exposition of this topic in 9.1.8 to 9.1.11 above. Isolated observations include the following:

9.4.12 In materialism all elements behave the same. It is mysterious to think of them as spread out and automatically united. For something to be a whole, it has to have an additional object, say, a soul or a mind. "Matter" refers to one way of perceiving things, and elementary particles are a lower form of mind. Mind is separate from matter, it is a separate object. The issue between monadology and materialism depends on which yields a better theory. According to materialism, everything is matter, and particles move in space and exert force in space. Everything has to be governed by material laws. Mental states have to be accounted for by motions and their forms in the brain. For instance, the thought of pleasure has to be a form of the motion of matter.

In this context, Gödel mentions William Harvey and his biological concepts, probably as an influence on the thought of Leibniz. He notes that logic deals with more general concepts and that monadology, which contains general laws of biology, is more specific. He speaks of the limit of science and asks:

9.4.13 Is it possible that all mental activities (infinite, always changing, etc.) be brain activities? There can be a factual answer to this question. Saying no to thinking as a property of a specific nature calls for saying no also to elementary particles. Consciousness is connected with one unity; a machine is composed of parts.

Gödel suggests that:

9.4.14 When an extremely improbable situation arises, we are entitled to draw large conclusions from it. The failure to generalize sufficiently is not confined to philosophy. For example, the calculus of probability is not rightly applied, even in everyday occurrences. It was not a coincidence that Robert Taft and Joseph Stalin died not long after Eisenhower had become president. [To my protest that this seems rather farfetched, Gödel said that] for instance, Eisenhower's policies might have brought distress to Taft and Stalin. There are [laws having to do with] the structure of the world, over and above natural causes. [Gödel made similar observations in his letter of 21 September 1953, which is quoted in section 1.3.]

Gödel posits a direct spiritual field of force in which we live and distinguishes between the explicit factors and a force which is distinct from the sum of the environment. He also speaks of a parapsychological force and of a common force existing for a given time period.

9.4.15 According to a Leibnizian idea, science only "combines" concepts, it does not "analyze" concepts. For example, from this Leibnizian perspective, Einstein's theory of relativity in itself is not an analysis of concepts but it is stimulating for real analysis. It deals with observations and does not penetrate into the last analysis because it presupposes a certain metaphysics, which is distinct from the "true metaphysics" of the Leibnizian science, while real analysis strives to find the correct metaphysics.

Toward the end of section 3.2, I quoted some passages written by Gödel in his "philosophical notebooks" in 1954. The following excerpt is of special relevance to the problem of determining the primitive concepts of metaphysics:

9.4.16 The fundamental philosophical concept is cause. It involves: will, force, enjoyment, God, time, space. The affirmation of being is the cause of the world. Property is the cause of the difference of things. Perhaps the other Kantian categories can be defined in terms of causality. Will and enjoyment lead to life and affirmation and negation. Being near in time and space underlies the possibility of influence.

If we leave out the concept of God, we have to add the concept of being. Will and enjoyment, combined with force, yield the affirmation of being, which is the cause of the world. Properties or concepts cause the difference of things. Clearly there are different ways to try to explicate the pregnant suggestions contained in 9.4.16. Instead of making the futile attempt to interpret them, however, I turn to another outline of his philosophical viewpoint produced by Gödel.

There is among the Gödel papers an undated bundle of loose pages written in the Gabelsberger shorthand, with some words in English mixed in. Cheryl Dawson has recently transcribed these pages, which were probably written around 1960. The first page is headed "Philosophical remarks" and contains a list of categories apparently summarizing what Gödel takes to be the subject matter of philosophy: "reason, cause, substance, *accidens*, necessity (conceptual), value-harmony (positiveness), God (= last principle), cognition, force, volition, time, form, content, matter, life, truth, class (= absolute), concept (general and individual), idea, reality, possibility, irreducible, many and one, essence." I believe the word *class* here means the universal class (of all sets and individuals) and that the identification of this with the absolute harks back to an idea of Cantor's.