CONSCIOUSNESS AND ACTUALITY IN WHITEHEADIAN ONTOLOGY

1. COGNITION IN THE STRUCTURE OF EXISTENCE

If cognitive science is the science of cognition, what is cognition? Whitehead’s answer is drawn directly from his fundamental ontology: cognition is a special form of what he calls ‘prehension,’ taking more particular forms in conscious perception, thought, imagination and other psychological processes.

From Whitehead’s sweeping metaphysics I propose to appropriate key elements and reconstruct from these a fundamental ontology which applies to consciousness in cognitive processes. This Whiteheadian ontology has shaped a novel approach to fundamental ontological categories used in database design or knowledge-based computer systems. And the Whiteheadian approach to conscious processes is instructive for the dynamic systems approach in cognitive science, which has been proposed as an alternative to both the neural-network approach and the language-of-thought approach to modelling cognitive processes.

Whitehead’s main concern was not cognitive process, but process in general. Within a fundamental ontology of process, he turned to processes of consciousness, perception, belief, and emotion – almost in passing as he sought to limn the truly ultimate structure of reality. For those raised in empirical science, or in philosophy oriented to science and modern logic, Whitehead’s ontology will seem the most extreme of a priori speculative metaphysics, written moreover in a philosophical prose that is as complex as Russell’s is simple. Still, the mathematical wizardry in Principia Mathematica was more Whitehead than Russell, and the purity of Whitehead’s ontological vision (shaped by his mathematician’s brain) is kindred in soul with the physical vision of an Einstein or a Hawking. It is this pure ontology that I want to frame, in order to construct from it, along lines Whitehead prescribed, an ontology of consciousness in various forms of cognition.
The resulting Whiteheadian ontology does not naturalise consciousness by reducing it to physical process. Rather, it places all of nature conscious in a world formed by one ontological process of ‘becoming’ through ‘prehension.’

2. WHITEHEAD’S BACKGROUND AND CONTEXT

Alfred North Whitehead (1861-1947) is known as a principal founder of mathematical logic, through the monumental *Principia Mathematica* (1910-13), which he co-authored with the younger Bertrand Russell. Whitehead and Russell exerted an indirect influence through logic on computer science and thus on the computer model of mind that informs cognitive science today. Whitehead’s later years, however, saw him engaged in abstract metaphysics, in work that is usually treated quite separately from his early work in mathematics and then mathematical logic. Here I shall address Whitehead’s ontology as developed in *Process and Reality* (1929; delivered as a lecture series in 1927-28).

Whitehead posited a basic structure of ‘process’ applied to all reality. As a mathematician he was keenly attuned to the physics of relativity and quantum mechanics emerging in his day. As a British-born philosopher he had his eye also on the early modern philosophers, from Descartes to Locke and Hume, for whom mental activity was salient. Yet as a philosophical cosmologist he looked to the ancient Greeks, to Plato and the pre-Socratics, especially Heraclitus, who famously proclaimed that everything is flux. Reflecting a further sensibility of the 19th century, Whitehead called his metaphysical-cosmological system ‘the philosophy of organism,’ and he did indeed think of the cosmos itself as alive in a fundamental sense. Today his system is often called ‘process philosophy’ and is influential in theology, since Whitehead defined a place for God in the cosmos, as the first being formed by the process of ‘becoming.’

With an eye to cognitive science, as opposed to metaphysical system, consider from Whitehead’s era three very different approaches to the exploration of the mind. Wundt’s experimental psychology used introspection to study sensations. Freud’s psycho-analysis used hypotheses about drives and infantile experience to explain adult neuroses. And Husserl’s phenomenology used the technique of reflection on one’s own experience to analyse the structure of consciousness, including the dynamics of time-consciousness. Here were three starkly different ‘sciences’ of the mind, differing in both aim and method. Yet each had to address the dynamics of changing and interacting states of mind, and today’s cognitive science carries the analysis of mind into