1. Introduction

In this essay, I will explore further a thesis about divine action and quantum mechanics whose roots trace back four decades in the field of “theology and science.” It has been extensively developed recently by scholars in the decade-long CTNS/Vatican Observatory series of research conferences. The thesis is the following: if quantum mechanics is interpreted philosophically in terms of ontological indeterminism (as found in one form of the Copenhagen interpretation), one can construct a bottom-up, noninterventionist, objective approach to mediated direct divine action in which God’s indirect acts of general and special providence at the macroscopic level arise in part, at least, from God’s objective direct action at the quantum level both in sustaining the time-development of elementary processes as governed

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1 For historical background, see Robert J. Russell, “Special Providence and Genetic Mutation: A New Defense of Theistic Evolution,” in Evolutionary and Molecular Biology: Scientific Perspectives on Divine Action, R.J. Russell, W.R. Stoeger, and F.J. Ayala, eds. (Vatican City State/Berkeley, Calif.: Vatican Observatory/Center for Theology and the Natural Sciences, 1998), secs. 2.3.1–2, the volume hereafter EMB.

by the Schrödinger equation and in acting with nature to bring about irreversible interactions referred to as “quantum events.”

I begin with a few clarifying comments (section 2) before turning to the heart of the essay (sections 3, 4, and 5). Here I first discuss methodological issues, including the warrant for a “bottom-up” approach to divine action and the problems of the “multiple interpretability” of quantum mechanics and “historical relativism.” Next I turn to two philosophical issues: the phenomenological domain of the measurement problem and its relation to the indeterministic form of the Copenhagen interpretation of quantum physics. Then I explore a variety of theological issues. Background topics include divine action at the quantum level and general providence, the pervasiveness of divine action, local and global aspects of divine action, and the challenge of special relativity. Central topics include God’s action in some or all quantum events and its relation to the problem of human freedom and the challenge of theodicy. I propose that a trinitarian doctrine of God is the most suitable context for locating the “divine action and quantum mechanics” thesis. A final section (6) lays out directions for future research on the philosophical implications of quantum mechanics and their relevance for divine action, including a proposed architecture of philosophical issues, an exploration of implications of Bell’s theorem, and a comparison of nonlocality and (in)determinism in Bohm’s formulation and the Copenhagen interpretation.

2. Clarifications

The general position of noninterventionist, objective, special divine action actually includes several distinct approaches: (i) agential models of God’s interaction with the world; (ii) agential models in combination with embodiment models of the God/world relation; (iii) agential models deployed through complex metaphysical systems, such as process philosophy and neo-Thomism. This essay will focus on the first approach, which, in turn, includes three versions distinguished primarily by their focus on inter- or intra-level causality: top-down causality, whole-part constraints, and bottom-up causality.3 Though this

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3 For a discussion of how a bottom-up approach relates to possible top-down approaches, as well as why a bottom-up approach is essential in the context of the early evolution of life, see Russell, “Introduction,” in CAC, sec. 4.3.