

UNITY-IN-DIFFERENCE: KARL RAHNER AND NIELS BOHR

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MUTUALLY CONTRASTING concepts—like grace and nature, spirit and matter, soul and body, revelation and history, heaven and earth, divine and human—are commonplace in Christian theology. Such conjugate pairs provide both the opposition of perspectives and the definition of tensions which are essential to the generation of any science. The character of our theological resolutions is tied to the manner in which the *relationship* within each of these pairs of concepts is grasped. An extreme dualist, for example, is likely to produce an extrinsicist theology in which contrasting elements are kept well apart; a thoroughgoing holist, on the other hand, will fashion a case for immanentism or pantheism. Those who keep to the middle of the theological road might be content to hold the contrasting concepts “in tension.” Perhaps out of prudence, these moderates justify their sense of balance by appealing to the limitations of human knowing and the ineffable mystery of God.

The issues at stake in the treatment of each conjugate pair are similar, if not precisely identical. Thus, while Karl Rahner himself observes that “it is highly dangerous to regard these pairs of concepts as all equivalent,”¹ his treatment of the relationships within each pair is consistently the same. His account is neither dualist nor monist (whether idealist or materialist) nor prudently middle-of-the-road. Rahner demands of his audience a great feat of intellectual imagination, for he seems to say in nearly every case that two opposed elements in each pair *are one and are not one*. This is no ordinary “holding in tension” so much as an extraordinary attempt to explicate a mystical vision in terms of epistemological and existential argument. “If one cannot see both the distinction and the unity in this bipolarity in knowledge and in freedom,” writes Rahner,

¹ Karl Rahner, “The Order of Redemption within the Order of Creation,” *Mission and Grace* 1 (also published as *The Christian Commitment*) (London: Sheed & Ward, 1963, 1970) 62. This essay is perhaps the most accessible discussion of “the whole question of the precise relationship between redemption and the world, grace and nature, heaven and earth.” For slightly different accounts of complementarity in theology, see D. M. MacKay, “‘Complementarity’ in Scientific and Theological Thinking,” *Zygon* 9 (1974) 225–44; and C. B. Kaiser, “Christology and Complementarity,” *Religious Studies* 12 (1976) 37–48. One could also discuss related theological enterprises, as in Tillich’s use of correlation, Barth’s use of dialectic and circle, and Berkhof’s usage of complementarity. In none of these, however, is the underpinning transcendental consideration so evident, nor the notion of asymptotic convergence so prominent.

“then basically he cannot see the point of what we are saying.”²

As well as speaking emphatically of “unity-in-difference,”³ Rahner also describes his vision in terms of “mutual conditioning,” “circularity,” “reciprocity,” “complementarity,” and “asymptotic convergence.” These are all theoretical terms, and they are difficult to grasp. Curiously, and not entirely coincidentally, the notions of “complementarity” and “asymptotic convergence” are key concepts in the discussion of a quite distinct issue which also has to do with the limits of human experience and communication. In this study I hope to penetrate some aspects of Rahner’s treatment of unity-in-difference by appealing to Niels Bohr’s accounts of “complementarity” and “asymptotic convergence.”⁴

Niels Bohr shared the Nobel Prize for physics with Einstein in 1922, though Einstein was receiving, retrospectively, the 1921 prize. Less well known than Einstein outside of scientific circles, he is rightly regarded as the father of the modern atom and the patron of quantum theory. Among philosophers of science, Bohr’s name is invoked as chief protagonist of the “orthodox” or “Copenhagen” interpretation of quantum theory. Put bluntly, the problem with which he wrestled was this: quantum physics suggests a fundamental discontinuity in nature so that, at a subatomic level, there is a limit to our ability to provide everyday, causal descriptions of what is happening; in other words, we have to take concepts from “this side” of that boundary and apply them to our mediated experiences of the subquantum realm; but this entails a paradox, for we are using terms from a less adequate theory (classical physics) in order to develop a more general theory (quantum physics). The puzzle is not unlike that involved in the use of analogical language about God, but it also raises the parallel paradox that, though the world is dependent on God, we can only find God by first living in the world. Bohr, as I will show in greater detail below, resolved these paradoxes by *prescribing* (on implicit epistemological grounds) that the quantum world and the everyday world were “complementary.” Further, between classical and quantum descriptions and calculations, one could speak of a “correspondence” or “asymptotic convergence.”

“Complementarity,” like “causality,” can be used in many different ways. Also like “causality,” *it is a term which describes a relationship between two events or concepts.* I would like to distinguish four kinds of complementarity: weak, strong, circular, and parallel.⁵ Our ordinary use

² Karl Rahner, *Foundations of Christian Faith* (New York: Seabury, 1978) 52.

³ See, e.g., *ibid.* 15, 17, 62, 447, 456.

⁴ See a more detailed treatment of Bohr’s thought in my study “The Transcendental Philosophy of Niels Bohr,” *Studies in History and Philosophy of Science* 13 (1982) 1–29, and in my “Niels Bohr and the Mysticism of Nature,” *Zygon* 17 (1982) 243–53.

⁵ These distinctions have been developed by C. F. von Weizsäcker and Michael

of "complementarity" is weak; that is, we say that two parts fit together nicely to make a whole, and the whole is greater than the parts. Further, the two parts, while different, are not mutually exclusive; rather, they are mutually compatible. Thus, one could say that an architect's floor plans and elevation plans are complementary in a weak sense. Strong complementarity, on the other hand, implies a union or wholeness of descriptive concepts which, in ordinary usage, are mutually exclusive and cannot be yoked together. The wave-particle duality of the electron is the classic instance of strong complementarity: what is a wave cannot be a particle, and vice versa, yet the electron is described as a wave *and* as a particle. Bohr says that we are entitled to such a complementarity of descriptions. We need not feel unease about yoking such contradictory terms together, he argues, because they are taken from our everyday world and applied to the world of the quantum beyond the bounds of ordinary experience. Rahner, in defending the nature of our talk about God, makes a similar case:

We can speak about transcendental experience only by means of what is secondary to it. For this reason we always have to speak about it in the language of "on the one hand . . . and on the other hand" and "not only . . . but also." This way of speaking about God comes from the fact that whenever we make this original, transcendental orientation to God explicit and thematic, *we have to speak about God by means of secondary and categorical concepts which are contraries within the realm of the categorical.*⁶

If the reader substitutes "classical" for "categorical" and "quantum" for "transcendental," then Rahner's argument here serves equally well as a defense of Bohr's position.

The notions of circular and parallel complementarity distinguish two further uses of the term. When both elements of the conjugate pair originate from the same domain—for example, both "wave" and "particle" originate from the domain of classical physics—then they are said to be in parallel complementarity. On the other hand, if the terms derive from different domains—as do divine revelation and human history—then they are in circular complementarity. Consider Bohr's claim that classical and quantum physics are complementary: one theory presumes that nature is continuous and causal, while the other assumes a radical discontinuity in nature; and while quantum theory provides a more general point of view than does classical physics, it is dependent on

Drieschner in their refinements of Bohr's thought. See C. F. von Weizsäcker, "Komplementarität und Logik," *Die Naturwissenschaften* 42 (1955) 525-26, and M. Drieschner, *Voraussage-Wahrscheinlichkeit-Objekt* (Berlin and New York: Springer, 1979) 152.

⁶ *Foundations* 71, my emphasis.

classical, everyday concepts for its terminology and unambiguous frames of reference. Quantum theory and classical theory, von Weizsäcker suggested, should therefore be described as in circular complementarity. A second example of circular complementarity, used by both Bohr and Rahner, is the mutuality in our notions of subject and object, spectator and actor, and person and world. (This is akin to Heidegger's "hermeneutic circle," a notion appropriated by Rahner and evident throughout his writings.⁷)

"Asymptotic convergence" is also a descriptive term. It too is applied to a relationship between two distinct entities or concepts. An "asymptote" is a line that approaches nearer and nearer to a given curve without ever meeting it within a finite distance. One can also speak of the asymptotic approximation of quantum and classical calculations. For very small quantities (and thus low quantum numbers), quantum calculations give results very different from classical physics. Indeed, it was the failure of classical physics at such subatomic levels that brought about the invention of the quantum theory. For higher quantum numbers, however, quantum and classical calculations become almost identical. They display an asymptotic convergence when graphed together. Says Bohr: "quantum mechanics presents a consistent generalization of deterministic mechanical description which it embraces as an asymptotic limit in the case of physical phenomena on a scale sufficiently large to allow the neglect of the quantum of action."⁸ Rahner uses the notion of asymptotic convergence explicitly and frequently, though in an analogous sense, as will be shown below. One key aspect of its usage is that paired concepts are kept distinct, though with a congruence at infinity, and hence constitute a proleptic unity-in-difference.

The notion of asymptotic convergence is important for two reasons: first, it emphasizes the similarity of the points of view held by Bohr and Rahner (though a more important factor is their common reliance on a transcendental approach); and secondly, it provides a model with which the notions of mutuality, reciprocity, complementarity, etc. can be less abstractly considered.

In this study I want to show that Rahner's treatment of unity-in-difference can be considered in terms of both strong and circular complementarity and asymptotic convergence. I shall begin with a review of his specific usage of these terms; there follow then some further comments on the problems with which Bohr wrestled; and thirdly, the

⁷ See Martin Heidegger, *Being and Time* (London: SCM, 1962) 26-28, 194-95; see also F. P. Fiorenza's introduction to Karl Rahner, *Spirit in the World* (London: Sheed & Ward, 1968) xl-xlii; Rahner's appeals to circularity are evident in *Foundations* 11, 24, 73, 191, 209, 231.

⁸ Niels Bohr, *Atomic Physics and Human Knowledge* (New York: Wiley, 1958) 73-74.

undergirding transcendental arguments employed by both will be shown to entail such strong and circular complementarity. I hope that these findings will open out the implications of Rahner's vision of the mutuality of the human and the divine, that the parallel with Bohr will provide both an apologetic for theological method and a stimulus to the dialogue between theology and science, and, finally, that the intertwined strengths and weaknesses of a transcendental approach can be untangled.

RAHNER'S USAGE OF COMPLEMENTARITY

Rahner's transcendental anthropology, both in its earlier more epistemological and later more existential guises, begins with our simultaneous experiences of limitation and openness. The subsequent treatment of issues like spirit and matter, soul and body, transcendent and contingent, and divine and human, arises out of the philosophical presuppositions developed in his anthropology. Consider, for example, the following passages. The first is taken from Rahner's fundamental study, *Spirit in the World*, and the second from what he announced as his last major contribution, *Foundations of Christian Faith*. In the conclusion to *Spirit in the World* he writes:

The world as known is always the world of man, is essentially a concept *complementary* to man. And the last-known, God, shines forth only in the limitless breadth of the pre-apprehension, in the desire for being as such by which every act of man is borne, and which is at work . . . in the fact that the free spirit becomes, and must become, sensibility in order to be spirit, and thus exposes itself to the whole destiny of this earth.⁹

In the *Foundations*, speaking of the presuppositions of transcendental Christology, Rahner shapes the same thought in slightly different words:

A "transcendental Christology" presupposes an understanding of the relationship of *mutual* conditioning and mediation in human existence between what is transcendently necessary and what is concretely and contingently historical. It is a relationship of such a kind that both elements in man's historical existence can only appear together and mutually condition each other: the transcendental element is always an intrinsic condition of the historical element in the historical itself, and, in spite of its being freely posited, the historical element co-determines existence in an absolute sense. In spite of their unity and their relationship of mutual conditioning, neither of the two elements can be reduced to the other.¹⁰

Rahner uses "mutual conditioning" three times in this passage. It is the terminology he favors throughout his writings while, on the other hand, he uses "complementarity" (*Komplementarität*) and its derivatives only

⁹ *Spirit in the World* 406, my emphasis.

¹⁰ *Foundations* 208, Rahner's emphasis.

rarely. His translators into English have often rendered “reciprocal conditioning” (*gegenseitige Bedingtheit*) and similar terms into “complementarity.” In the following discussion of both terminologies it is hoped that their equivalence will become clear.

Rahner’s transcendental anthropology has its genesis in *Spirit in the World*. In questioning the necessary conditions for knowing and being, he is forced to investigate the relationship between sense experience and abstract thought, world and spirit, and body and soul. In asking about what constitutes these human abilities—and more will be said below about transcendental claims to “what cannot but be the case”—Rahner finds himself concluding that the conjugate pairs cannot be isolated from each other, albeit each element in each pair is completely different from its conjugate element. For example, we are only aware of sense experience through thought, and thought is only made possible because of sense experience. With reference to these considerations, Rahner suggests a unity-in-difference (which “almost seems contradictory”) of human essence as sentient and spirit.¹¹ Again, he describes *conversio ad phantasmata* and abstraction as being in “reciprocal priority” (*wechselseitige Priorität*).¹² The active and receptive intellects are related as “essentially complementary moments (*wesentlich komplementäre Momente*) of the one knowing . . . they are essentially complementary faculties (*wesentlich komplementäre Fähigkeiten*).”¹³

This epistemological emphasis has its ontological correlate. The conclusion of *Spirit in the World* is that “the world as known . . . is essentially a concept complementary to man (*wesentlich ein Komplementärbegriff zu Mensch*)”—and here “man” connotes, I think, human being as knowing and spirit.¹⁴ Elsewhere, certainly, Rahner writes of “matter as the complement (*Andersheit*) to the creaturely spirit as such.”¹⁵ Within human being itself he speaks of a similar relationship between body and soul: “the essential mutual interrelationship (*wesentliche gegenseitige Bezogenheit*) of spirit and matter in the creature.”¹⁶

Though there are different shades of meaning here, in each case Rahner appears to be influenced by the same model for unity-in-difference. When

¹¹ *Spirit in the World* 239.

¹² *Ibid.* 266; *Geist in Welt* (Munich: Kösel, 1957) 270.

¹³ *Spirit in the World* 242; *Geist in Welt* 247.

¹⁴ *Spirit in the World* 406; *Geist in Welt* 405.

¹⁵ Karl Rahner, “Immanent and Transcendent Consummation of the World,” *Theological Investigations* 10 (London: Darton Longman & Todd, 1973) 288; *Schriften zur Theologie* 8, 608.

¹⁶ *Ibid.* 286, 605–6. See *Spirit in the World* 250. In “Proving Oneself in Time of Sickness” Rahner speaks of the soul as “complementing (*als Vollzug*) the body.” See *Theological Investigations* 7 (London: Darton Longman & Todd, 1971) 276; *Schriften zur Theologie* 7, 266.

he speaks of the *created* spirit and matter as distinct but not contradictory,¹⁷ this is perhaps an instance of weak and parallel complementarity. Further on, however, Rahner insists on the "essential difference between spirit and matter" and yet "that matter and spirit are not simply disparate things but that matter is, as it were, 'frozen' spirit whose only meaning is to render real spirit possible."¹⁸ Here the relationship can be described in terms of strong and circular complementarity.

The philosophical investigations are readily applicable to the most difficult issues in Christian theology: the hypostatic union in the God-man Jesus Christ, grace and nature, revelation and history, freedom and sin, etc. As well as shaping Rahner's responses, the philosophical preliminaries also justify his method: given a complementarity of spirit and world, one can as well begin theology from below as from above. This is what Rahner calls "ascending Christology" or "Christology within an evolutionary view of the world."¹⁹ Jesus Christ is regarded as the origin and the triumph of our aspiration to transcend material and historical existence:

If we take as our starting point the unity of spirit and matter, and this does not mean homogeneity, then we have to try to understand man as the existent in whom the basic tendency of matter to discover itself in spirit through self-transcendence reaches its definitive breakthrough The permanent beginning and the absolute guarantee that this ultimate self-transcendence, which is fundamentally unsurpassable, will succeed and has already begun is what we call the "hypostatic union."

The God-Man is the initial beginning and the definitive triumph of the movement of the world's self-transcendence into absolute closeness to the mystery of God

It is absolutely important to assert an essential difference between matter and spirit . . . because it is only by so doing that a radical openness towards the ultimate point of identity whom we call God is maintained.²⁰

Here we see the close connection between Rahner's Christology and his metaphysics. Let me return again briefly to the topic of the unity of spirit and matter, then, in order to demonstrate further the strong complementarity in Rahner's fundamental model of unity-in-difference.

In his essay on "The Unity of Spirit and Matter in the Christian Understanding of Faith," Rahner stresses that the relationship between

¹⁷ Karl Rahner, "The Unity of Spirit and Matter in the Christian Understanding of Faith," *Theological Investigations* 6 (London: Darton Longman & Todd, 1969) 156.

¹⁸ *Ibid.* 177. See also Karl Rahner, *Hominisation* (London: Burns & Oates, 1956) 57, 92.

¹⁹ *Foundations* 178; see also 181, 192, 298, 301.

²⁰ *Foundations* 181, 184. See also Karl Rahner, "Current Problems in Christology," *Theological Investigations* 1 (London: Darton Longman & Todd, 1961) 162, 165, 181.

spirit and matter is neither one of uniformity nor one of duality:

Regarding the difference of spirit and matter . . . what we call spirit and what we call matter are at least in the actual order of reality irreversibly related to one another (*unaufhebbar aufeinander bezogen*) and . . . together, in spite of their differences, they constitute the one reality of the world, and . . . do not exist merely one beside the other . . . [An] absolute dualism would no longer be capable of understanding spirit and matter as a unity in origin, history and goal.²¹

The *origin* is on one level the indivisibility of human being, and at the most profound level the indivisible Being of God. The *history* refers both to the conditioning of human being and knowing in space and time; and it also refers to the dynamism of human knowing. This underlying dynamism provides the possibility for unity-in-difference and for the reconciliation of opposites: in the sweep of history and in our own self-awareness there is an abiding and threatening sense of division, and yet in our origin and goal there is the source and promise of unity. The *goal*, of course, is the Godhead. These three elements will be taken up again in the discussion of asymptotic convergence and perichoresis to follow.

Given his convictions about the complementarity of matter and spirit, it is but a short step for Rahner to claim a "complementary relationship (*gegenseitige Bedingungsverhältnis*) existing between the anthropological starting point and the theological answer."²² At the beginning of this section I quoted at length from Rahner's *Foundations* on the implications of "transcendental Christology." This is the pattern for his Christology done from below. "The dialectic at the root of human existence is resolved," says Rahner, "through being attributed to the one who is himself the ultimate ground of this duality."²³ Moreover, he assures his readers that this is neither "oxymoron" nor a "cheap trick of a paradoxical dialectic." It is absolutely meaningful, Rahner continues,

to attribute to Jesus at the same time an absolute, basic state of being directly present to God from the very beginning and a development of this original self-consciousness of the created spiritual nature being absolutely handed over to the Logos. For this development does not refer to the establishment of the basic state of direct presence to God but to the objective, humanly and conceptually expressed articulation and objectification of this basic state . . . These two notions are not

²¹ "The Unity of Spirit and Matter" 162-63; *Schriften zur Theologie* 6, 196-97. See also "The Unity of Spirit and Matter" 177.

²² Karl Rahner, "The Foundation of Belief Today," *Theological Investigations* 16 (London: Darton Longman & Todd, 1979) 9; *Schriften zur Theologie* 12, 24. See also *Foundations* 209: "From this starting point there also follows the relationship of *mutual* conditioning between Christian theo-logy and Christo-logy."

²³ Karl Rahner, "The One Christ and the Universality of Salvation," *Theological Investigations* 16, 224.

merely not mutually contradictory—they demand each other of their very nature.²⁴

In Rahner's various essays one encounters the specific applications of this approach. He speaks of the priesthood of Christ, for example, as entailing both cultic and prophetic elements in an interior unity; and this despite the fact that priesthood is normally an office determined "from below" and expressing our natural orientation towards God, while the office of prophet is established by God from above, revealing the word of God "above" nature. Because Christ is the decisive salvation-reality, Rahner argues for "the mutual conditioning and essentially complementary relationship (*die gegenseitige Bedingtheit und wesensnotwendige Zusammengehörigkeit*) of (cultic) priesthood and prophetism in the Catholic priesthood."²⁵

This notion of the interplay between the order of creation and the order of redemption as reciprocal can be found in all Rahner's basic theological positions. The history of divine revelation, for example, is also the history of human hope, and vice versa. The relationship is "dialogical": "This revelation has two aspects, transcendental and historical, which are distinct but belong together. Both are necessary so that revelation can exist at all."²⁶ Similarly, in the exploration of the connections between nature and grace, Rahner concludes:

The only point we are making here is this: the individual experience of individual persons and the collective religious experience of the human race, both of them together in a kind of mutual unity and mutual interpretation, make it legitimate for us to interpret man, when he experiences himself in the most various ways as the subject of unlimited transcendence, as the event of God's absolute and radical self-communication.²⁷

In his accounts of individual freedom and authority, of human being as *simul justus et peccator*, of witness, and of anonymous Christianity,

²⁴ Karl Rahner, "Dogmatic Reflections on the Knowledge and Self-Consciousness of Christ," *Theological Investigations* 5 (London: Darton Longman & Todd, 1966) 211.

²⁵ Karl Rahner, "Priestly Existence," *Theological Investigations* 3 (London: Darton Longman & Todd, 1967) 243; *Schriften zur Theologie* 3, 290.

²⁶ *Foundations* 171. See also Karl Rahner, "Religious Enthusiasm and the Experience of Grace," *Theological Investigations* 16, 41: "no transcendent experience is to be found without some complementary historical expression." This is also the theme of Rahner's *Hearers of the Word*.

²⁷ *Foundations* 132. See also Karl Rahner, "Concerning the Relationship between Nature and Grace," *Theological Investigations* 1 passim; "Experience of the Spirit and Existential Commitment," *Theological Investigations* 16, 33, concerning "the connection and the complementary dependence (*gegenseitige Bedingung*) of spiritual experience and existential decision"; *Schriften zur Theologie* 12, 51. See also "The Order of Redemption within the Order of Creation" passim.

Rahner employs the same model of unity-in-difference between the created order and the redemptive order. The claim itself rests on a transcendental method, which will be discussed in the final section of this study. It also entails the consideration of the nature of the concepts which we employ in ordinary language to describe the extraordinary:

The fact that this existential relationship of Christ as man to God is not immediately available in our experience, thus where *our* concepts have their origin, does not absolutely forbid us making such statements. For the ontic relationship of his human nature is not immediately available to us either, and yet it can be stated in an analogical, indirect and asymptotic way.²⁸

If complementarity connotes the grasp of a relationship of reciprocal conditioning between conjugate pairs, then asymptotic convergence provides an image of how the different can also be one. To this image we now turn.

RAHNER'S USAGE OF ASYMPTOTIC CONVERGENCE

In the same essay on redemption and creation from which I have quoted above, Rahner also speaks of the unity as both "aboriginal" and "unconsummated," leading to an "ultimate congruity."²⁹ Whether he be speaking of our understanding of the unity of heaven and earth, as in this case, or of subject and object, infinite and finite, transcendental and categorical, he appeals to the image of a movement *towards* unity that is also grounded *in* the unity. It is in this discussion also that he consistently introduces the notion of "asymptotic convergence."

At the outset, his references are to epistemological and existential considerations. "All knowledge," says Rahner in *Foundations*, "takes place against the background of an affirmation of the holy mystery, or of absolute being, as the horizon of the *asymptotic term* and of the questioning ground of the act of knowledge and its 'object.'³⁰ Or again, "the recognition of the limitation and openness of a worldview on which all science lives and of its liability to critical questioning is itself only possible in virtue of the *a priori* implicit affirmation of an *asymptotically approached* infinite being whom we call God."³¹ Even though the experience of God is "prior to any conceptual objectification or interpretation" and "in principle independent of these processes," we can say "that God is present as the *asymptotic goal*, hidden in itself, of the experience of a limitless dynamic force inherent in the spirit endowed with knowledge

²⁸ "Current Problems in Christology" 172, Rahner's emphasis.

²⁹ "The Order of Redemption within the Order of Creation" 107.

³⁰ *Foundations* 69, my emphasis; see also 17.

³¹ Karl Rahner, "Science as a 'Confession'?" *Theological Investigations* 3, 288, my emphasis.

and freedom.”³² Thus, from a pre-Christian anthropological point of view, “man is understood as someone who dares to hope that his existence is borne by this all-pervasive mystery not merely as the *asymptotic goal* and the dynamics of an infinite movement which always remains within the realm of the finite. He hopes that this mystery gives itself”³³

These presuppositions are now applied by Rahner to various theological issues like Christology, nature and grace, history and revelation, and divine and natural order. Taking up the Christological question, for example, he moves from the mutuality of matter and spirit to the notion of their asymptotic perfection:

If the history of matter and spirit in the unity constituted by [the world and history] is a history of an ever renewed process of rising to self-transcendence, then the supreme, ultimate, and ‘eschatological’ self-transcendence is that in which the world freely opens itself to the self-bestowal of God himself The acceptance of the world by God in his act of self-bestowal then, and the acceptance of God in his act of self-bestowal by the world are manifested historically in such a way that these two acceptances are seen to constitute a unity. . . . The fact that this event has taken place through Jesus of Nazareth is ascertainable only through the historical experience of the crucified and risen Jesus, *an experience which as such cannot in its turn be communicated any further*. But this does nothing to alter the fact that an ‘evolutionary view of the world’ can conceive of the idea of the Incarnation as the *asymptotic goal* of a development of the world reaching out to God³⁴

In unfolding the implications of “the world reaching out to God,” Rahner then introduces the further theological issues.

Consider first the conjugate pairs of freedom and responsibility, spiritual experience and existential decision, grace and nature. Because “the transcendent experience of the radical nature of the Spirit is mediated through categorial objects,”³⁵ and because an existential decision to choose one thing among others can mediate the free acceptance of the Spirit, Rahner speaks of “the *complementary* dependence of spiritual experience and existential decision” so that the two constitute a unity.³⁶

³² Karl Rahner, “The Experience of God Today,” *Theological Investigations* 11 (London: Darton Longman & Todd, 1974) 152–53, my emphasis.

³³ *Foundations* 209, my emphasis. See also “Reflections in Methodology in Theology,” *Theological Investigations* 11, 94.

³⁴ Karl Rahner, “Christology in the Setting of Modern Man’s Understanding of Himself and His World,” *Theological Investigations* 11, 226–27, my emphasis; see also *Foundations* 199, 297.

³⁵ Karl Rahner, “Experience of the Spirit and Existential Commitment,” *Theological Investigations* 16, 28.

³⁶ *Ibid.* 33, my emphasis.

In the same essay he reflects in similar terms on grace and nature:

The transcendental nature of freedom not only enables us to make a *categorical* choice which has moral consequences . . . For activity subject to categorical limits not only takes place within a transcendent horizon which is open to the absolute, it also radically alters this horizon itself. This means that such activity must be described as a possible, freely constituted acceptance of the self-communication of God . . . In all this we have of course been speaking of the transcendent nature of man which is raised up by *grace* and which, through grace, is ordered to the direct presence of God himself . . . a goal which can only be approached in an asymptotic fashion.³⁷

Because there is a genuine freedom of choice, Rahner also speaks of the "asymptotically moral" and the "asymptotic approximation" to right decisions.³⁸

As with the individual in the existential situation, so also with the history of human being, there is an openness to the divine. The real revelation of God (as opposed to "natural" revelation) has two aspects, "transcendental and historical, which are distinct but belong together." "These two aspects," says Rahner, "have a certain variability in their reciprocal relationship."³⁹ Thus the history of the world is at the same time the history of revelation.⁴⁰ If the coming of Christ establishes the act of God's revelation, it also confirms the origin and the goal of the human history within which Incarnation occurs. "In Jesus, God's communication to man in grace and at the same time its categorical self-interpretation in the corporeal, tangible and social dimension have reached their climax, have become revelation in an absolute sense."⁴¹ For this reason, then, God is not merely a forbidding asymptotic point towards which we move, and thus always beyond our finitude; rather, through grace we find in our own being, and in an exemplary manner in Christ, God's presence in our history, within the bounds of our own finitude.⁴² At the same time, it remains key to Rahner's vision that precisely because of God's intrinsic intervention, we can envisage the

³⁷ Ibid. 26–27, Rahner's emphasis.

³⁸ Karl Rahner, "The Theology of Power," *Theological Investigations* 4 (London: Darton Longman & Todd, 1966) 401, 402. See *Foundations* 408.

³⁹ *Foundations* 171. See also 161.

⁴⁰ Ibid. 144.

⁴¹ Ibid. 174–75.

⁴² See Karl Rahner, "Theological Observations on the Concept of 'Witness,'" *Theological Investigations* 13 (London: Darton Longman & Todd, 1975) 156. See also in the same volume "On the Relationship between Theology and the Contemporary Sciences" 98: "Concerning this mystery which is made present in the transcendental experience as absolute, Christianity asserts that it is something more than merely the goal, remaining forever remote and asymptotic."

world's end and goal "asymptotically from below" in a union between God and a reality of the world.⁴³ If transcendental and historical revelation belong together, this is not to say that the *transcendent* and the historical belong together. "This real transcendence is never captured by metaphysical reflection," says Rahner, "it can be approached *asymptotically* at most, if at all, in mystical experience and perhaps in the experience of final loneliness in the face of death."⁴⁴

Having indicated Rahner's usage of asymptotic convergence, I will now offer some remarks about its significance. First, he does not apply the term across the board to the various conjugate pairs entailed in theological discussion. In most cases he reserves the term to describe the relationship between the totally transcendent and the familiarly contingent. Our efforts to comprehend the transcendent can only employ categorical terms (terms derived from our everyday world); at best we can only approach the transcendent asymptotically. On the other hand, there are the pairs of terms which he describes as "transcendental" and categorical. Examples of such pairings are creaturely spirit and matter, or transcendental and categorical revelation. (An experience of transcendence, which can never be objectively represented in its own self, but rather indicated by abstract concepts, is called transcendental experience.⁴⁵) These latter pairings are more usually described in terms of "mutual conditioning," "reciprocity," "circularity," and "complementarity." Secondly, it is through the notion of asymptotic convergence which underlies the origin and goal of these reciprocal pairs that Rahner finds support for the possibility of their unity-in-difference.

In the discussion of complementarity above, I noted that Rahner's treatment of spirit and matter displays a shift from weak and parallel complementarity to strong and circular complementarity. It is now clear that this shift corresponds to the relationship between transcendental experience and the utterly transcendent as such. The notion of "transcendental" can be illustrated by a bridge which is firmly anchored on our side of an abyss, and which stretches out into infinity. Thus in one sense the categorical and the transcendental terms are in parallel, for they both belong to our familiar world; and on the other hand they are circular, for the transcendental can also be considered as reaching in from what lies beyond our ordinary world. And it is precisely through this possibility that Rahner explores Christian theology: the openness of the creaturely spirit to the divine spirit, so that in Jesus Christ we have

⁴³ *Foundations* 199.

⁴⁴ *Ibid.* 35, my emphasis.

⁴⁵ See *Foundations* 21; see also my "On the Term 'Transcendental,'" *Milltown Studies* 11 (1983) 1-24.

the guarantee of the strong complementarity of grace and nature, history and revelation. God has come into our familiar categorical world.

There is more to be said, though, because the image of the bridge fails to capture the vision that God is not only at the far-off other end of the bridge, but also in the fact of its very existence. This point is better made in terms of the experience of the creaturely spirit: God is not only utterly transcendent *beyond* our being, but also utterly transcendent *within* our own appropriation of the mysterious openness of our existence.

Because asymptotic convergence applies more to the end or goal of our aspirations and questionings, it does not completely capture the full breadth of Rahner's vision. A second image that he has employed is that of perichoresis or circumincession. These terms appear to have come into theological discussion through Gregory of Nazianzus, who in turn was familiar with Anaxagoras' efforts to resolve the problem of the one and the many, and of the appearance of *being* from *nothing*. It was Anaxagoras who speculated that all things came into being as part of the unfolding rotation of the mind's own rotation. Thus, even when such things as planets move off to great distances, they contain within them that from which they originated: the "moving-around" mind.⁴⁶ The term may have a secondary meaning of "coming in succession."

In Christology, "perichoresis" was employed to describe the mutual indwelling of divine and human natures in Jesus Christ. In Trinitarian theology the same term was applied to the indwelling of three persons in one God, and their mutual immanence. Its Latin equivalent, "circumincession," also has double significance: a passive mutuality (*circum-insedere*) and a dynamic "moving around" (*circum-incedere*). Rahner applies perichoresis in a general way, though in each case he is attempting to deal with the problem of unity-in-difference. For example, he writes of "the nature of spirit as being *one* in the '*perichoresis*' (circumincession) of knowledge and love."⁴⁷ Again, of faith, hope, and charity Rahner observes: "The *perichoresis*, the mutual interaction between the three theological virtues by which they condition one another and permeate one another."⁴⁸ His most illuminating comments, though, appear in the essay to which I have already frequently referred, "The Order of Redemption within the Order of Creation." After discussing the unity-in-diversity between created and redemptive orders in terms of an "almost static ontology," Rahner deals with the issues from the *human* rather than the *theological* perspective: "the unity of the world of nature

⁴⁶ For comments on perichoresis and Nazianzus, see G. S. Kirk and J. E. Raven, *The Presocratic Philosophers* (Cambridge: Cambridge Univ., 1957) 373, 380.

⁴⁷ "The Concept of Mystery in Catholic Theology" 42.

⁴⁸ Karl Rahner, "On the Theology of Hope," *Theological Investigations* 10, 255.

and of grace, permanent and indestructible as it is, also has its history." He then continues:

Speaking theologically, we can say that this unity, which is thus something to be historically fulfilled, is already eschatologically complete, and yet is to be realized through human beings; it is still unfinished, vulnerable and hidden

Underlying this process . . . is the fact that the relationship between the different factors in this one world is not simply a static relationship; the different elements, notwithstanding their permanent unity and their permanent differentiation, do in a certain sense approach or recede from each other, and their *perichoresis* (if one may term it so) can vary in degree and hence have a history.⁴⁹

Rahner then goes on to discuss in the same vein not only the conjugation of salvation and history, nature and grace, but also soul and body, freedom and responsibility, and, ultimately, the incarnation of the Word of God. In his usage of perichoresis, then, we once again encounter a shift between weak and strong, parallel and circular complementarities. (Of course, these artificial distinctions are made only to clarify meanings, and there is no venality in Rahner's shifts of emphasis.) Further, we see him extending a term from its Christological and Trinitarian usage into the discussion of other theological issues involving unity-in-difference. It should come as no surprise now to observe how at the end of the discussion he brings the image back to its great exemplar, Jesus Christ. For it is in Christ that the ultimately different are ultimately united; and it is in Christ that all divisions which hope for union find their promise of being made one. In him the scattered are gathered. And by being broken the One is given to the many. As Auden puts it in his "Compline":

That we, too, may come to the picnic
With nothing to hide, join the dance
As it moves in perichoresis,
Turns about the abiding tree.⁵⁰

Instead of the more programmatic and deterministic image taken from geometry, namely, asymptotic convergence, we have a broad and charming vision of a relationship of "dancing around." We dance around knowing that God is at the end of our journeying, but also knowing that God is the paradigmatic dancer. For this reason, despite the distance ahead, we can claim to have already arrived at the end of our journeying. Rahner's notion of asymptotic convergence is made complete, then, if it is understood as entailing a unity in its origins as well as in its far-off goal.

⁴⁹ "The Order of Redemption within the Order of Creation" 82-83.

⁵⁰ W. H. Auden, "Compline," from *Horae Canonicae* in *Collected Shorter Poems 1927-1957* (London: Faber, 1966) 337.

It would be wrong to treat the metaphor of perichoresis in a spatial way, for what is at stake here partly transcends space (and the nature of space itself seems contingent). Again, it would be erroneous to think that participation in some universal idea (the "dance") accounted for all puzzles of unity-in-difference. Beneath the images there are supporting arguments, and these shall be discussed in the section below on "Transcendental Arguments." Before dealing with Rahner's own philosophical considerations, however, I want to summarize Bohr's contributions to the interpretation of quantum theory. Here the parallelism is doubly enlightening: first, it shows contemporary science being caught in a similar dilemma; secondly, it introduces a fresh case in which the human communicator is stuck with everyday terms and extraordinary events.

BOHR'S INTERPRETATION OF QUANTUM THEORY⁶¹

It can be said that in theology we are forced to think not only "within" this world but also "beyond" its material and spatiotemporal boundaries. While this spatial image can be misleading, there is a sense in which God is greater than any scale of cosmic greatness. Because of this radical difference we must, as Rahner says, speak about God by means of secondary and categorical concepts. In quantum mechanics much the same problem is raised at the other end of the cosmic scale: quantum theory suggests there is an essential (and not just a contingent) limit in nature; and this limit no longer has meaning in terms of particles but in terms of other physical dimensions related to energy. What this limit implies, then, is a break in that Laplacean causal chain by which the smallest entities could be given deterministic explanation within a mechanistic scheme of reality. Instead, it is arguable that we are reduced to probabilistic statements which tell us not so much about the subquantum world as they do about our measurements of the subquantum world. Measurement, in other words, is rather like revelation: just as we speak of God's revelation in terms of human categorical history, so also we speak of quantum events in terms of classical physics. The problems of interpreting quantum theory, therefore, include the problems of the application of descriptive concepts.

Rahner is well aware of the similarities between the theological and quantum-theoretical issues, despite his unfamiliarity with Bohr's particular contribution. He writes:

It may be true, therefore, that Christian statements . . . make use of conceptual models of a mythological kind when they use conceptual systems which, in

⁶¹ This section is a much shorter and less technical version of my study on Bohr referred to at n. 4 above. The evidence from Bohr's notes and manuscripts, as well as his various writings, is produced in detail in that article.

themselves and in their origins, are spatial or physico-temporal in character But the use of such conceptual systems and forms of language does not in any sense invalidate the reality referred to by means of them On this point it seems that, as a matter of ultimate principle, a difference of this kind, between the perceptual model and the reality to which it relates, is present even in modern physics, and even in those conceptual models which, within their own dimension, are contrary to one another, as for instance particles and waves, which at once assert and, by the contradiction between them, at the same time obscure, the reality to which they refer In all this the situation is, as we have said, not such that a reality referred to could be expressed in non-image form and without the aid of such conceptual models.⁵²

This statement is an echo of Rahner's argument that human knowing is conditioned by *conversio ad phantasmata*: in our talk about God we must "work with representations derived from the field of man's *a posteriori* knowledge."⁵³

Niels Bohr knew nothing about *conversio ad phantasmata*, but he spoke a great deal about its equivalent: the necessary conditions for the possibility of unambiguous communication. Bohr's interests were not purely in physics, then, but also in metaphysics. Just as Rahner's early philosophical works dealt with the reciprocity of sense experience and thought,⁵⁴ so also Bohr was forced by the dilemma of modern physics to examine the wider circumstances of human knowing. Whereas Newton's vision of physics dealt with moving particles, the new quantum physics depended on the unfolding of a wave function. Did this mean that all reality was in fact "wave-like" and without precise location, without mass? Or again, if the physicist placed a diffraction-grating in front of an electron beam, then wave behavior would be observed; but if a collision apparatus was substituted, then particle behavior could be measured. What then was the reality of the electron? Could it really be this contradiction-in-terms, the wave particle? Bohr's response to questions like these implied an abandonment of the confident objectivism of classical physics. The intertwining of subject and object, he urged, must be acknowledged. Because of this, it was important to consider the *whole*

⁵² Karl Rahner, "Ideas for a Theology of Death," *Theological Investigations* 13, 172-73; see also 185-86. In a letter to the author dated March 16, 1981, Rahner lamented his ignorance of Bohr's thought; he also acknowledged that his use of "complementarity" was most likely strong and circular, and he warned that he thought these notions only secondary to his claims "that there are, in the creaturely order of existence, concepts which on the one hand cannot be reduced to some order of succession nor elevated to some higher synthesis, although it is unthinkable to have one without the other."

⁵³ "Science as a 'Confession'?" 393; see *Foundations* 52 and the whole of *Spirit in the World*.

⁵⁴ See *Spirit in the World* 265-66, 279-80, 309.

experimental situation: in observing an electron the conditions of observation are integral to the report made on the reality observed.

Bohr's typical argument rests on the presupposition that the discovery of the quantum represents a universal and ineradicable lower-limit to our ordinary, everyday descriptions. Because the "indivisible" can be divided no further, it is therefore impossible for us to "point out" our meaning in the usual way of categorical descriptions. The subsequent three key stages of his argument are these: (1) Some kind of a conceptual framework is a necessary condition of the possibility of ordering experience. (2) It is a necessary condition of the possibility of objective description of processes at the boundaries of human experience that concepts related to more normal experience be employed. (3) Our position as observers in a domain of experience where unambiguous application of concepts depends essentially on the conditions of observation, permits the use of complementary descriptions, and demands them if description is to be exhaustive. As far as Bohr is concerned, therefore, the issues at stake in the interpretation of quantum theory are the same as those thrown up by the paradoxes of the subject-object and word-world distinctions. Bohr is quite explicit about this:

In general, philosophical perspective, it is significant that, as regards analysis and synthesis in other fields of knowledge, we are confronted with situations reminding us of the situation in quantum physics. Thus . . . the characteristics of conscious individuals . . . present features of wholeness, the account of which implies a typical complementary mode of description . . . [The] gradual development of an appropriate terminology for the description of the simpler situation in physical science indicates that we are not dealing with more or less vague analogies, but with clear examples of logical relations which, in different contexts, are met with in wider fields.⁵⁵

The above passage, perhaps the final version of Bohr's credo, bears much in common with Rahner's "Basic Epistemological Problems" at the outset of *Foundations*.⁵⁶ Of course, anyone taking up epistemological issues is going to be involved in a discussion of perception, knowledge, reality, phenomena, and so on. But neither Bohr nor Rahner arrives at the positivist, empiricist, or traditional idealist accounts of knowledge and reality. Further, neither makes the strong distinction between "phenomena" and the "thing in itself" that Kant makes for all our knowing (or is supposed to have made). Adding a dynamism to the view commonly attributed to Kant, Rahner arrives at the mutuality of subject and object

⁵⁵ Niels Bohr, "Quantum Physics and Philosophy," in *Essays 1958-1962 on Atomic Physics and Human Knowledge* (London: Wiley, 1963) 7.

⁵⁶ See *Foundations* 15-23; see also the passages referred to at nn. 10, 25, 27 above.

in a manner which denies neither the possibility of knowledge nor the possibility of knowing reality. Such knowing, however, is achieved under the condition of the complementarity of man and world: "When the reality of man is understood correctly, there exists an inescapable circle between his horizons of understanding and what is said, heard and understood."⁵⁷ In adopting this position, Rahner has invited comparison with Heidegger and the notion of "hermeneutic circle." Bohr's position, reflected in the frequently-quoted aphorism that "We are both actors and spectators on the stage of life," is open to a similar comparison. Such positions can be further distinguished: contemporary philosophers of science talk about holism variously as "thoroughgoing," "moderate," and "transcendental." The "thoroughgoing holist" will deny the possibility of accurate knowledge of the world-as-it-is by denying the word-world and language-fact distinctions (as espoused by Richard Rorty and inspired by Heidegger, Kuhn, the later Wittgenstein, and Quine).⁵⁸ The "moderate" or "transcendental holist" will, on the other hand, while conceding the circularity of theory and observation, argue for the "entrenchment" or "firm anchorage" of a core collection of concepts and predicates in reality—even though these too may be eventually up for revision.⁵⁹ It seems to me that both Bohr and Rahner belong in this latter group: while they are sensitive to the contingency of our concepts, they are also ready to defend our ability to know reality even with these concepts: it is only because we are part of the reality we know that we are caught in this circle, and not because we are isolated from it.

The comparison between Bohr and Rahner does not end there. What is more pertinent now is their special interest in the conditions for the possibility of knowledge at the upper and lower bounds of human experience, as represented by mortality and the quantum. Further, both men are aware of the parallels existing between the two paths of exploration. Says Rahner in his essay on "The Future of Theology":

all theology can only speak of its subject in analogous terms; in all its statements a difference has to be recognized between the idea and its expression, the image and that reality which it properly signifies. Theologians have had to be aware of this even though they can never overcome the situation in which vision and expression are simultaneously one and distinct It involves a constant movement to and fro between various conceptual patterns We will have to accustom ourselves to this [pallid abstraction of theological language] just as we

⁵⁷ Ibid. 24; see also 231.

⁵⁸ See Richard Rorty, *Philosophy and the Mirror of Nature* (New Jersey: Princeton Univ., 1980) esp. chap. 8.

⁵⁹ See Mary Hesse, *Revolutions and Reconstructions in the Philosophy of Science* (Brighton: Harvester, 1980) 63–110, 167–86.

have accustomed ourselves to the formal abstractions involved in modern physics.⁶⁰

In notes from Bohr's preparations for an article on "Physical Science and the Study of Religions" we read:

a whole new background for the relationship between scientific research and religious attitude has been created by modern development of physics which has demanded a revision of the presumptions for the unambiguous application of our most elementary concepts and thereby brought epistemological problems to the foreground in an unsuspected manner . . .

. . . it will be attempted to show the development in our time has forced us to look into epistemological problems of a kind which recalls the common problems of the religions.⁶¹

As Bohr is reported to have said to John Baillie after his 1949 Gifford Lectures, "I think you theologians should make much more use than you are doing of the principle of complementarity."⁶²

Having indicated the philosophical nature of Bohr's interpretation of quantum theory, and having pointed out the similarity between his and Rahner's thought, I would like to return to the details of Bohr's task. For it is by considering the specific issues with which Bohr struggled that I hope to provide an enlightening model for the understanding of Rahner's vision. I will take up three topics in turn: correspondence, complementarity, and asymptotic convergence.

Correspondence

Every physics student is taught Bohr's correspondence principle: that there is a correspondence between classical and quantum calculations for processes in which the effect of quantum discontinuity is negligible. But this is only the early and rather specific "correspondence principle" which grew out of Bohr's makeshift techniques in the first years of quantum physics. The second and more general version of the correspondence principle is less well known, and yet key to Bohr's epistemological standpoint. I have formulated it in the second of his three arguments above: it is a necessary condition of the possibility of objective description of processes at the boundaries of human experience that concepts related to more normal experience be employed. Bohr, with his

⁶⁰ Karl Rahner, "The Future of Theology," *Theological Investigations* 11, 141.

⁶¹ Notes dated Aug. 26 and 27, 1953, MSS:20 in the Niels Bohr Archive, written in Bohr's idiosyncratic English. See my article on Bohr and the mysticism of nature for further evidence, referred to at n. 4 above.

⁶² See J. Baillie, *Our Sense of the Presence of God* (London: Oxford Univ., 1962) 217.

complex and highly revised formulations, put it this way:

the necessity of making extensive use, nevertheless, of the classical concepts, upon which depends ultimately the interpretation of all experience, gave rise to the formulation of the so-called correspondence principle which expresses our endeavours to utilize all the classical concepts by giving them a suitable quantum-theoretical re-interpretation.⁶³

I have shown elsewhere that by "classical" Bohr simply meant everyday experiential concepts (or concepts anchored in ordinary experience). "Classical," therefore, is the equivalent of "categorical."⁶⁴

Bohr gradually came to see that this "correspondence principle" was already presupposed in his defense of the principle of complementarity. In one of his final writings on quantum theory and philosophy, therefore, he omits the term altogether. Preferring to speak of quantum theory as a "generalization," he suggests instead that the relationship between quantum and classical accounts is one of asymptotic approximation: "quantum mechanics presents a consistent generalization of deterministic mechanical description which it embraces as an asymptotic limit in the case of physical phenomena on a scale sufficiently large to allow the neglect of the quantum of action."⁶⁵

This is not to deny his principle of correspondence so much as to place it behind other more primary arguments; and it is also to describe the changing degree of correspondence between quantum and classical calculations and concepts. Finally, however, Bohr here emphasizes that the point of perfect congruence between quantum and classical can never be reached from this "classical" world view which we find ourselves forced to adopt. Because we cannot change what is constitutive of our knowing, we are caught in a circle of actor and spectator, subject and object. And though we can discover a broader generalization in quantum theory, the quantum-theoretical "reality" must always be no more than a refinement of our classical concepts. We cannot describe an electron other than as a wave or particle (or wave packet or smeared particle or whatever); and in each case we are confined by the limitations on the range of our experiential knowledge and the conditions for unambiguous communication.

Complementarity

Bohr's discussion of complementarity began in the late 1920's, well after the formulation of the correspondence principle. While the development of the "new" quantum theory was the occasion for the introduc-

⁶³ Niels Bohr, "Introductory Survey," *Atomic Theory and the Description of Nature* (Cambridge: Cambridge Univ., 1934) 8.

⁶⁴ See my "The Transcendental Philosophy of Niels Bohr" 13.

⁶⁵ See above at n. 8.

tion of the principle of complementarity, the concerns that led to the modification of the correspondence principle (from a rule of thumb for calculations to a statement about the applicability of concepts) are also evident. So also, in Bohr's comments about complementarity there is a development of its range of application and its significance. If he began with problems like the experimental evidence for wave-particle duality, or like Heisenberg's uncertainty principle, his solution in the end was a very general one. I have described it above as Bohr's argument 3: our position as observers in a domain of experience where unambiguous application of concepts depends essentially on the conditions of observation, permits the use of complementary descriptions, and demands them if description is to be exhaustive.

Bohr thought complementarity an extremely simple notion. He could not understand how people failed to grasp it, and kept insisting that it was just like "causality"—except a broader generalization. That is, where *sequential* accounts are appropriate in our everyday world, a complete description of events at or beyond the bounds of ordinary experience demands *circular* accounts. Complementarity thus satisfies the demands for a new conceptual framework brought about by the failure of classical physics at the subatomic level. This is Bohr's fundamental argument, and one which might be described as transcendental in character (argument 1 above): some kind of conceptual framework is a necessary condition of the possibility of ordering experience. This statement presages the concerns of more recent philosophy of science to emphasize the circle between theory and observation. Or, as Rahner puts it, "*Conversion to the phantasm and abstraction are moments of a single process and are inseparably related to each other in a relationship of reciprocal priority.*"⁶⁶

If one accepts the principle of complementarity, then one can automatically accept unity-in-difference. For Bohr, complementarity was applied to a list of conjugate pairs in both parallel and circular senses: he speaks of the complementarity of particle/wave, classical/quantum, causality/complementarity, love/justice, subject/object, *psyche/physis*, thought/feeling, and so on. The difference was at the conceptual level and forced upon us by the limitations to human experience (through which concepts gain their exchange value); and the unity lies in the wholeness demanded if any accounts of extraordinary reality are to be communicable as knowledge. This is because in extraordinary cases we are both knowers and agents (spectators and actors) and thereby engaged in the unity of the situation prior to making our reports upon it. Thus, for example, an observation of an electron as possessing either momentum or wave length demands that the *whole* experimental arrangement be described: here not only the observation but also the nature of the

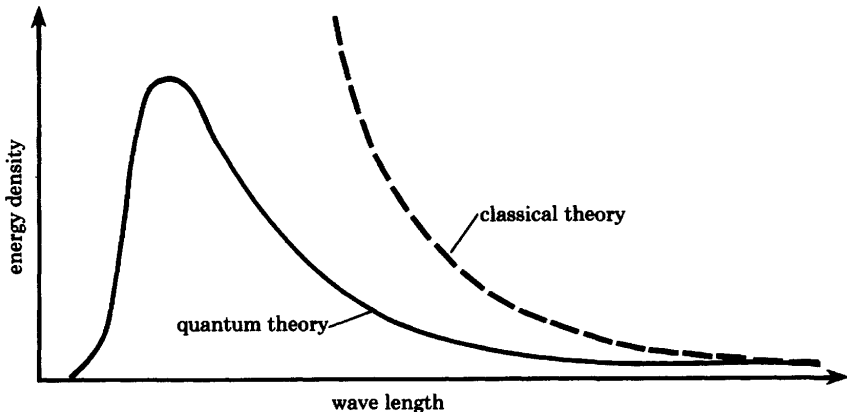
⁶⁶ *Spirit in the World* 266, Rahner's emphasis.

observing apparatus has to be taken into account. This is because a diffraction-grating will produce a completely different set of observations to a collision apparatus. Now it might be objected here that this is nothing new: measuring the mass of a crystal in a beam balance is quite different from measuring its volume in a displacement apparatus. But mass and volume are not mutually contradictory, whereas particle properties and wave properties are. In the latter case we can make a distinction between apparatus and object of measurement. That is, we can for everyday purposes talk about the objective reality of the crystal. However, in the quantum experiment we are not talking about the reality of an isolated electron; rather, we are talking about the wholeness of an electron-apparatus interaction. And that is the reality engaged in.

It is the same in anthropology: soul cannot be distinguished too strongly from body because one is disclosed in the other, and because one is known by the other. Or again, the reciprocity of sense experience and thought is disclosed in a circle, because one only knows through an initial learning via sense experience; and sense experience is only known at a reflexive level through thought. Says Rahner: "There is in man an inescapable *unity in difference between one's original self-possession and reflection.*"⁶⁷

Asymptotic Convergence

In the discussion of transcendental arguments to follow, the defense for complementarity will be examined in greater detail. I want to conclude this section on Bohr's thought with some remarks on the quantum problems as models for the theological issues which have been raised earlier. Let me begin with the simplest spatial image of the asymptotic convergence of quantum and classical calculations.



⁶⁷ *Foundations* 15, Rahner's emphasis.

A graph of classical and quantum theoretical predictions for radiation from a "black body" shows not only the divergence between the two sets of calculations for short wave lengths (and it is at this end of the scale that the quantum theory gives results matching those observed experimentally); the graph also shows the asymptotic convergence or correspondence between the two theories for much longer wave lengths (that is, for macroscopic conditions). At the macroscopic level the quantum and the classical theories give similar results. Both adequately match the results of experimental observations. Further, it is only at infinity (a point which we can never arrive at incrementally) that the two become identical. On our scale they are always separate; on the scale of infinity they become the same. Can this be a model for unity-in-difference? Perhaps it is only at best a recommendation, only part of the story. But the example illustrates how infinite qualitative differences at one end of the scale of our experience become congruent at the infinite end of the scale of our imagination. In particular, the example illustrates that the point of asymptotic convergence is not so much a meeting point *between* two lines of approach, but *beyond* the two lines of approach. This is important when we transfer the image into theology. The point of convergence between history and revelation, say, is not somewhere *between* the two strands as we appreciate them now (rather like a fence between neighbors); it is constantly *beyond*. And yet this distant point of unity is always contained in, and intended by, these almost eternally disparate and different stances.

A transcendental argument, as shall be shown more fully in a moment, also entails the bringing together of two mutually exclusive strands in human knowing: sense experience and abstract thought. But while the latter is not the former, the two are also mutually interdependent, because we can only become aware of the one through the other. When discussing this transcendental step, then, it becomes more appropriate to speak of the circle in human knowing rather than of asymptotic convergence. Both images, however, are intended to illustrate a relationship of unity-in-difference. If they are combined, they produce something like a converging spiral: perichoresis. Or again, a parallel complementarity can also be combined with a circular complementarity. The spiral is simply a circle converging towards a line of axis, and it is always defined in terms of, and with reference to, that line of axis.

TRANSCENDENTAL ARGUMENTS AND COMPLEMENTARITY

The term "transcendental" has almost separate histories in secular philosophy and Catholic theology. It is possible, nevertheless, to argue for a common focus: the transcendental approach entails not so much an argument as a claim; and the claim is an articulation of our insight into "what cannot but be the case" with respect to human capabilities for

thought and action.⁶⁸ There is also a more traditional description of a transcendental argument, as having to do with the necessary conditions of the possibility of experience. In both accounts one finds the movement from "particular" to "universal." Further, in both accounts the validity of the *general* claim depends upon one being able to catch oneself in the *particular act*. Charles Taylor thus uses the example of the queen rule in chess: it is a necessary condition of the possibility of my playing chess that I understand the rules for moving a queen. A general consequence of my playing a game of chess is that I understand the queen rule; but the consequence is also immediately entailed in the performance.

Bohr and Rahner use more elaborate arguments, but the performative nature of their claims is the same. Because they are performative in this way, they are also circular arguments. But the circularity, I will argue, is not vicious. This is because in each articulation of "necessary conditions" we take ourselves a step further or a step higher in our exploration of the bounds of our knowing and being. In this sense, there is evident an element of spiral or asymptotic convergence in a transcendental claim.

There is also an element of strong and circular complementarity in the transcendental method. Kant would be the first to acknowledge this, for the whole point of his approach is the possibility of universal knowledge under the limiting conditions of human sense experience. In moving from some undeniable particular sense experience to its necessary conditions, we move from the empirical to the a priori, from the contingent to the universal. Here we see the mutuality of the categorical and the transcendental, or, as Bohr put it, of the classical and the quantum.

It is important to note that a transcendental claim is different from an inductive or deductive argument. It does not entail a syllogism, but rather the statement that "x is a necessary condition of the possibility of this particular y that I find myself engaged in." This is not an analytic assertion of the kind "x is a square, therefore x has four sides." But, since it claims a kind of universal truth, it can hardly be classed as a contingent or synthetic conclusion. The problem of the transcendental argument is also the problem of the world-word distinction. In opting for the significance of a transcendental claim, we also acknowledge something of the circularity of being and knowing. As our articulations of the ramifications of this insight become more and more elaborate, so also the claims become more precarious, more interesting, and more questionable.

I do not wish to dwell any further on the nature of the transcendental method here, however, and I ask the reader to take into account the more

⁶⁸ I have dealt with this topic at length in my article "On the Term 'Transcendental,'" (n. 45 above).

extensive treatment I have given the topic elsewhere. In this study I am more interested in pointing out how complementarity is entailed in such a method. A transcendental claim involves two mutually contrasting factors, one based in experience, the other reaching beyond experience. The articulation of the latter depends upon the former, but the latter is the condition of the possibility of the former. This situation is exactly the same as that obtaining in Bohr's account of the strong complementarity of quantum and classical physics. It also has its history, as I will now detail, in the evolution of Rahner's approach.

Rahner's intellectual forebears, Aquinas and Maréchal, offer clues to the connection between transcendental claims and complementarity. Thus Maréchal (anticipating Bohr's remarks about the complementarity of actor and spectator, and Rahner's insistence on the mutual conditioning of spirit and world) speaks of the complementarity of finite and infinite and the disclosure of one in the other.

The finite object is intelligible only through the appeal to an infinite complement of intelligibility (*par l'appel d'un complément infini d'intelligibilité*). The transcendent principle of causality expresses this complementary (*complémentaire*) and simultaneous disclosure of the objective contingency⁶⁹

Again, David Burrell in his study of Aquinas draws attention to a similar situation at the heart of Aquinas' theology. According to Burrell, then, Aquinas does not so much argue as prescribe the rules for discourse about divine things: "Such a logical advantage allows him to propose a principle of complementarity regarding our use of concrete or abstract expressions of God."⁷⁰ Further on, Burrell suggests that Aquinas is employing a performative argument in order to help us to penetrate the situation in which we find ourselves, rather as one attempts to penetrate a paradox or Zen koan.⁷¹

A third stream of influence on Rahner's thought, referring to Kant and Hegel as well as harking back to Aristotle, is to be found in Heidegger's attempts to ground metaphysics. Here too we encounter a statement of the nonvicious circularity of being and questioning. Again, in Heidegger's emphasis on the entry into the circle of Being in order to grasp Being, we see evidence for the performative nature of this approach, as well as its implications for the reciprocity of *Dasein* and Being. Finally, Heidegger is ready to acknowledge that he rests his case on a presupposition to be accepted and understood—that is, upon a prescription of

⁶⁹ Joseph Maréchal, *Le point départ de la métaphysique* (Louvain: Lessianum, 1922–26) cahier 5, 452.

⁷⁰ David Burrell, *Aquinas* (London: Routledge & Kegan Paul, 1979) 21; see also 25.

⁷¹ *Ibid.* 118, 51.

what is necessarily the case:

It is quite impossible for there to be any 'circular argument' in formulating the question about the meaning of Being; for in answering the question, the issue is not one of grounding something by such a derivation; it is rather one of laying bare the grounds for it and exhibiting them.

In the question of the meaning of Being there is no 'circular reasoning' but a remarkable 'relatedness backward or forward' which what we are asking about (Being) bears to the inquiry itself as a mode of Being of an entity.⁷²

This "relatedness backward or forward," I would argue, is synonymous with "mutual conditioning" and "strong complementarity."

The example of the queen rule in the explanation of transcendental arguments is inadequate in one important aspect. In chess there is such a queen rule. In perception, and in accounts of "what cannot but be the case," there are no given rules; we have to discern and make them as we go along. Because of this, transcendental claims are both performative and prescriptive in character. Again, because there are no rules to appeal to, the articulations of our insights are always going to be contested. Despite the contestable nature of these claims, however, the higher-order levels of reflection are securely anchored in the unavoidable openness of human experience:

Anyone who has once raised the question about his transcendence and about its term can no longer let it go unanswered. For even if he were to say that it is a question which cannot be answered, which should not be answered, and which, because it demands too much, should be left alone, even then he would already have given an answer to this question, whether the right one or the wrong one is here beside the point.⁷³

It may be the case that the quantum theory will be radically superseded, though I suspect that the day is a long way off. Bohr's arguments and Rahner's arguments will remain, as philosophical stances do, of abiding importance for our living in the world and our aspiring to comprehend the world and our part in it. "Complementarity" and "asymptotic convergence" are terms which may become more helpful and then be superseded. Our openness to God, and God's embracing of us, will concern us until the end of time.

⁷² Martin Heidegger, *Being and Time* 26–28, 194–95, 362–64; see also William J. Richardson, *Heidegger: Through Phenomenology to Thought* (The Hague: Nijhoff, 1974) 42.

⁷³ *Foundations* 23.