

CHAPTER 30

.....

ZAKĪ NAJĪB MAḤMŪD
(D. 1993), NAḤWA FALSĀFA
'ILMIYYA (TOWARD A
SCIENTIFIC PHILOSOPHY)

.....

MUHAMMAD ALI KHALIDI

ZAKĪ Najīb Maḥmūd (1905–1993) occupies a unique and anomalous position in the development of twentieth-century Arab thought, as a self-styled follower of logical empiricism and the emerging analytic school of philosophy. The task of explicating and promoting the philosophical ideas of logical empiricism to an Arab audience dominated his early work. This included a critique of previous metaphysical philosophy, an adherence to empiricism and conceptual analysis, and a conception of philosophy as an under-laborer to the sciences. However, in his later work, he addressed some of the issues that preoccupied other Arab thinkers of his era, notably the possibility of reconciling tradition and modernity, the compatibility of Islamic religious thought with liberalism and democracy, and general questions of progress, secularism, and the state of Arab and Egyptian society.

In this chapter, I will begin with a brief biographical sketch, attempting to relate some of the particulars of Maḥmūd's life in such a way as to shed light on his philosophical output. Then I will take a closer look at the main themes of the text that is the focus of this chapter, *Naḥwa Falsafa 'Ilmiyya* (*Toward a Scientific Philosophy*), a work that propounds and defends logical empiricism, engaging with its principal arguments and relating it to the work of others. Finally, I will attempt to provide an assessment of his work and its place in twentieth-century Arab thought.

30.1. LIFE AND WORK

.....

The life of Zaki Najīb Maḥmūd spanned almost the entire twentieth century, and it straddled the period of British occupation, the Egyptian monarchy, the revolution of

1952, and the regimes of Presidents Jamāl ʿAbd al-Nāṣir, Anwar al-Sādāt, and Ḥusnī Mubārak. Born to a middle-class family in the governorate of Dumyāt (Damietta) on the Mediterranean coast, he moved to Cairo with his family in early childhood. He received his schooling in Cairo as well as at Gordon Memorial College in Khartoum, where his father was employed as a civil servant by the government of Sudan. Returning to Cairo in the early 1920s, he graduated from secondary school and enrolled in university at a teachers training college. Though he attended university courses covering both Western and Arab-Islamic civilization, he recounts that his experiences in the two sets of courses were starkly different. He was thrilled that a professor of English literature could spend an entire lecture interpreting a single line from Wordsworth, “I wandered lonely as a cloud.” But he was despondent to find that lectures on pre-Islamic (Jāhili) poetry were dry and indigestible by comparison (Maḥmūd, *Afkār*, 6–7). While at university, Maḥmūd read in the work of Salama Mūsā that Aḥmad b. Ḥanbal had defied the ʿAbbasid caliph al-Maʿmūn’s position on the status of the Qurʾān, insisting against the Muʿtazilites that it was eternal, not created in time, and that he suffered for upholding his doctrinal position. Admiring this principled stance, he asked his Islamic history professor about the episode but was promptly told to leave the classroom (Maḥmūd, *Afkār*, 15). These and other pedagogical experiences apparently led him to focus his intellectual energies almost entirely on studying the Western literary and philosophical traditions, doing so mostly on his own while at university and in subsequent years.

Shortly after graduating from university, he was commissioned by renowned literary critic and editor Aḥmad Ḥasan al-Zayyāt to write articles for the influential literary journal that he edited, *al-Risāla*. Zayyāt’s writings and translations were an important early influence, especially translations of Goethe and Lamartine, and Maḥmūd rose enthusiastically to the challenge. He wrote essays on such figures as Schopenhauer, Nietzsche, and Bergson, which drew the attention of other prominent figures in Egyptian intellectual circles (Maḥmūd, *Afkār*, 21). In 1934, Aḥmad Amīn, the writer and historian who headed Lajnat al-Taʿlīf wa-l-Tarjama wa-l-Nashr (Committee for Composition, Translation, and Publication), which aimed to produce and disseminate books that would help educate the Egyptian public, commissioned Maḥmūd to write a history of philosophy. Maḥmūd produced three volumes, which he admits relied on W. T. Stace’s *A Critical History of Greek Philosophy* and Will Durant’s *The Story of Philosophy*. One of the challenges he faced was in finding Arabic equivalents for some of the terms in use in modern Western philosophy, and he reports that many of the expressions he coined for the purpose of these volumes remained in wide usage in subsequent work by other Arab writers. During this period of his life, in the early 1930s, when Maḥmūd was in his late twenties and early thirties, he describes himself as being highly impressionable, changing his views as some caterpillars change color depending on background foliage. He evidently came under the influence of many successive philosophical figures and movements as he wrote popular accounts of them for a wider Arab public, and this led to something of an intellectual crisis. In later life, he compared himself during this phase to al-Ghazālī, whose skeptical doubts obliged him to leave Baghdad to cure himself of his intellectual disease (Maḥmūd, *Afkār*, 22–25).

For Maḥmūd, the chance to leave Cairo eventually came in the form of a government-sponsored scholarship to study for a doctorate in philosophy at King's College, London University. He traveled to London in 1944 and chose to work with H. F. Hallett, a philosopher with diverse interests, especially known for his work on Spinoza. His doctoral dissertation was on the concept of personal self-determination in the context of the free will debate, and was strongly influenced by Bergson, as well as by the existentialist and pragmatist schools of philosophy. But Maḥmūd relates that he experienced something of a Damascene conversion in the midst of his doctoral studies, with the appointment of A. J. Ayer to a professorship at University College, London, in 1946. On hearing of his appointment, he decided to read Ayer's *Language, Truth and Logic* in preparation for attending his inaugural lecture and was immediately taken with the approach of logical empiricism (Maḥmūd, *Afkār*, 31–36). Apparently, it was too late to change the course of his research, for he saw his dissertation project to fruition, but from then onward he regarded logical empiricism as the correct philosophical approach. It is perhaps revealing that he persevered with his original research topic despite coming under the influence of Ayer, since the adoption of a logical empiricist framework would presumably have led him to regard traditional approaches to the free will debate as empty metaphysical speculation.

On returning to Egypt, Maḥmūd took up an academic position at Cairo University and embarked on a writing career that would stretch over four decades. One of his first philosophical works, *al-Manṭiq al-waḍ'ī* (*The Positivist Logic*), was devoted to logic and related philosophical matters, such as the nature of definition. The two-volume work was first published in 1951, and it bore the clear influence of logical empiricism and the writings of Ayer, as well as Frege, Russell, Wittgenstein, and other figures in the analytic movement in philosophy. Two years later, in 1953, he published *Khurāfat al-Mitāfīzīqā* (*The Myth of Metaphysics*), in which he paid particular attention to the work of Russell, Moore, and Carnap, devoting a chapter to each. But before introducing the reader to these figures, he defended the logical empiricist view that most of the statements of traditional metaphysics, being unverifiable by experience, were literally devoid of meaning. Instead of trying to make factual statements that are not based on actual experience, philosophers should restrict themselves to analyzing the empirically based concepts of science (as well as those of everyday life):

The philosopher ought not to pronounce a single sentence that attempts to describe the universe or any part of it, for his entire mission consists in analyzing the expressions uttered by scientists in the course of their research or by ordinary people in the course of their daily lives, in such a way as to reveal the hidden [meanings] of those expressions, so that we can be assured of the soundness of their statements. It is an utter travesty for the philosopher to sit in an armchair in the comfort of his home, with his head resting on his palms, claiming to us and to himself that he is pondering the reality of the world. (Maḥmūd, *Khurāfat*, 5)

The work earned considerable criticism for its denial of factual content to any statement that was not empirically verifiable. Maḥmūd does not seem to have been prepared

for the negative reaction it provoked, but he did not try to soften his views as a result. Undeterred, he reissued the work three decades later under a different title, *Mawqif fī l-Mītāfizīqā* (*A Stance towards Metaphysics*), in the optimistic conviction that the new title would lead his critics to regard it “more objectively” (Maḥmūd, *Mawqif*). The same antimetaphysical stance was upheld in *Naḥwa Falsafa ʿIlmiyya* (*Towards a Scientific Philosophy*), first published in 1958 (and reissued in 1980), which will be discussed in the next section.

Though much of his early work (roughly between 1950 and 1970) was focused on explicating and defending the claims and methods of the logical empiricists, Maḥmūd began in the late 1960s and early 1970s to engage gradually with the ideas and debates that preoccupied many other Arab intellectual figures of this period. This change in direction in his philosophical work and intellectual orientation is noted in several different places in essays of a personal or autobiographical nature. As he puts it in the introduction to one of his first publications in this new vein, *The Renewal of Arab Thought* (*Tajdīd al-Fikr al-ʿArabī*), published in 1971:

The writer of these pages did not have the leisure in years past to peruse volumes from our Arab heritage, for he is one of thousands of Arab intellectuals whose eyes were opened [only] to European thought—both ancient and modern—to the point that they hastened to conclude that it was identical to human thought and that there was no other thought. Nothing else had been put before their eyes. (Maḥmūd, *Tajdīd*, 5)

Later in life, he would observe in the introduction to the aptly named monograph *ʿArabī bayna Thaḡāfatayn* (*An Arab between Two Cultures*) that he realized by the time he reached middle age that he had exclusively studied the civilization of the West, reading Arabic literature on the side, mainly poetry (Maḥmūd, *ʿArabī*, 5–6). Writing of himself in the third person, he noted drily: “He became somewhat concerned by a certain imbalance in his cultural formation” (Maḥmūd, *ʿArabī*, 6).

One should not get the impression that Maḥmūd was completely alienated from his own cultural and political milieu prior to middle age. Among his early writings were essays commenting either directly or obliquely on the state of Egyptian society under the monarchy, prior to the revolution of 1952. In a collection of articles first published in 1947, he laments the hierarchical nature of Egyptian society, the slavish mindset of many of his compatriots, and the general decline of Arab civilization (Maḥmūd, *Jannat*). In another collection, *Wa-l-Thawra ʿalā l-Abwāb* (*On the Threshold of Revolution*), written in the year prior to the revolution but published afterward, he writes a satirical and allegorical essay about intellectuals debating the interests of the “people” on a pristine mountaintop while oblivious of their real plight at the base of the mountain below (Maḥmūd, *Thawra*). However, even though Maḥmūd was mindful of the context in which he lived and wrote, he seemed in the first half of his intellectual life to be both relatively unaware of the details of the Arab-Islamic intellectual tradition and to believe

in a clean break with past mores and values. This is how he put it in a collection of essays published in 1967:

The writer of these pages remained, for a long portion of his life, on the path of those who have faith in modern science alone, spurning all that was inherited and ancient. He has now changed his point of view, finding that it is utterly impossible to create a distinctive and unique character—be it the character of an individual or that of an entire nation—by means of modern science alone. The distinctiveness must come from other features. (Maḥmūd, *Wajhat*, viii)

He goes on to explain that these features and values must come from the past, since they are not invented on a regular basis in the course of human history and cannot just be refashioned at will. Moreover, he argues that this is what ensures continuity in a nation. Thus, by his own admission, Maḥmūd initially regarded the Arab-Islamic cultural, religious, and philosophical heritage as somewhat obsolete and out of step with the modern world, and did not make an effort to become thoroughly acquainted with it. However, he reacted against this attitude by the late 1960s, and in his later work, he aimed largely to effect a reconciliation of this heritage with some of the main features of modern Western civilization, including the intellectual virtues of modern scientific inquiry and the political and social values of liberal democracy.

While engaging more directly with Arab-Islamic civilization, Maḥmūd continued to argue for the necessity of embracing modernity and science. In more than one place, he laments the fact that Western culture also happens to be the culture of the Arab world's imperialist aggressors, and that throwing off the yoke of colonialism has led some to reject Western civilization altogether. Instead, he calls on his fellow Arabs and Muslims to learn a lesson from their predecessors, who picked and chose from among the elements of both Jāhili and Greek cultures (Maḥmūd, *Afkār*, 184–85). Rather than absolute acceptance or complete rejection, he advocates an eclectic attitude in attempting to reconcile his own cultural heritage with modern developments in science, politics, and culture. But in calling for reconciliation between that heritage and Western modernity, Maḥmūd sometimes evinces a rather simplistic view of the Arab-Islamic tradition. Among the retarding factors that he identifies in Arab-Islamic civilization are the alleged facts that the ruler in history was also the shaper of people's opinions, that ancient thought was endlessly repeated rather than interpreted, and that humans were thought to be able to negate natural laws (Maḥmūd, *Tajdīd*, 27). These and other broad pronouncements on Arab-Islamic history are not adequately justified, and they verge on a kind of cultural essentialism. Maḥmūd also espouses a rather extreme form of linguistic determinism in diagnosing the problems of the Arab world and in advocating solutions. For instance, he states in various places that the Arabic language is part of the reason for lack of progress in Arab societies and argues that the process of cultural renewal should start with a revolution in language (Maḥmūd, *Tajdīd*, 205 ff.). He contends, for example, that the concept of *reality* (*al-wāqi'*) is devalued in Arab culture due to the etymology of the word, since it is derived from *wuqū'* (falling or descent), resulting in contempt for the concept of reality (Maḥmūd, *Afkār*, 189). Even though Maḥmūd

claims to have made an effort in the second half of his philosophical career to engage with the Arab-Islamic tradition and to approach modernity with that past in mind, the verdicts he reaches too often indicate a rather superficial engagement with tradition.

30.2. NAḤWA FALSAFA ʿILMIYYA

The work under consideration is strongly influenced by the philosophical movement known as “logical positivism” or “logical empiricism,” though many other influences are also evident, including perhaps most prominently, Hume, Comte, Bradley, Russell, Moore, and Wittgenstein. There are also passing references in the text to a range of other philosophers, notably Kant and Hegel, but for the most part the treatment of these and other historical figures is rather cursory and geared toward demonstrating the problematic nature of traditional metaphysics and the superiority of the logical empiricist position on various philosophical issues.

Though the terms are often used interchangeably, “logical positivism” and “logical empiricism” sometimes connote a subtle shift in the philosophical movement that originated in the Vienna Circle. While “logical positivism” is often associated with some of the more extreme doctrines that were prevalent in the early years of the movement, “logical empiricism” usually refers to a more mature philosophical position that tempered and modified many of those earlier claims. The label “positivism” is also considered misleading since it suggests an affinity with the philosophy of Auguste Comte, whose philosophical doctrines were not widely shared by proponents of the movement (though MaḤmūd includes a brief discussion of Comte’s views in this work). By contrast, “empiricism” is more accurate since it signals a more direct relationship to the positions of the British empiricists, particularly Hume, who was indeed a strong influence on the movement.

The Vienna Circle was a group of philosophers that met in the Austrian capital between 1924 and 1936, many of whom had been trained in the natural and social sciences. Among its most prominent figures were Moritz Schlick, Otto Neurath, Hans Reichenbach, Rudolf Carnap, and Herbert Feigl. But the Vienna Circle had an influence that extended far beyond the group of philosophers who actually met in Vienna. One early offshoot of the group was the Berlin Society for Empirical Philosophy, which was founded by Reichenbach on his move to Berlin in 1926. Some members of the group were forced to emigrate to the United States in the 1930s due to the rise of anti-Semitism and attitudes of anti-intellectualism in the run-up to the Second World War. This meant that their ideas circulated widely in US academia, where both Carnap and Reichenbach went on to have influential careers. In addition to Ayer, who disseminated their doctrines in Britain and the English-speaking world, visitors to the Vienna Circle included the American philosophers W. V. Quine and Ernest Nagel, as well as the Polish logician Alfred Tarski, all of whom were influenced by their ideas and spread that influence further afield. Even though many of the original doctrines of the Vienna Circle have been transformed beyond recognition, logical empiricism is unquestionably one of the main sources for the development of contemporary analytic philosophy (for a brief account of the Vienna Circle, see Uebel 2011).

After coming under the influence of Ayer and his writings, Maḥmūd was almost single-handedly responsible for transmitting the ideas of the Vienna Circle and logical empiricism to the Arab world. In this and other works, he self-consciously identifies as a member of a philosophical movement, with such phrases as “we, the logical empiricists” (alternatively, “scientific empiricists” or “logical positivists”). He seldom departs from standard logical empiricist views, but he conveys them in an accessible and attractive manner. The text is written throughout in a fluid and readable style, but the treatment is not always systematic, and certain ideas are sometimes reintroduced in two or three different places, without sufficient cross-references between the chapters. In addition to Ayer’s *Language, Truth and Logic* (1936; 2nd ed., 1946), the logical empiricist work that seems to have served as an inspiration for Maḥmūd’s text is Reichenbach’s accessible late work, *The Rise of Scientific Philosophy* (1951), even down to its title and some of its chapter headings. But though there are definite echoes of the latter work (and occasional explicit references to it) in Maḥmūd’s text, it is only loosely related to in terms of its main themes and arguments. In what follows, I will attempt to explicate what I take to be some of the central positions of the text, examining the justifications provided for them and raising some objections to them.

30.2.1. The Analytic-Synthetic Distinction

Among the main themes of the text is the distinction between analytic (*taḥlīlī*) and synthetic (*tarkībī*) statements or propositions, and the denial of the synthetic a priori. The distinction between analytic statements, whose truth depends solely on the meanings of their words, and synthetic statements, whose truth depends also on empirical facts, was a central tenet of logical empiricism (Maḥmūd, *Naḥwa*, 35). In an analytic statement, the subject is defined by the predicate, or more generally, some of the words that enter into the statement define the other words in the statement. Thus, the truth of the statement turns merely on the meanings of the words involved. Such statements can be justified without recourse to experience and are hence a priori (*qablī*). By contrast, synthetic statements depend not just on the meanings of the words involved, but also on facts about the world. As such, they can only be justified with reference to relevant experiences, which means that they are a posteriori (*ba’dī*) (Maḥmūd, *Naḥwa*, 168). Kant famously asserted that there could be statements, notably those of mathematics, that are both synthetic and a priori, but Maḥmūd, along with the logical empiricists, rejects this claim and with it the notion that reason alone can be the source of truths about the world.

For Maḥmūd, analytic statements are a priori because they are tautologous (*tikrārī*). Their a priori nature is trivial since they merely serve as definitions that provide the meanings of terms, such as “A puppy is a young dog.” In this and other similar cases, there is no need to carry out an investigation into the natural world to verify the truth of the statement; it can be justified “prior” to experience, since it is a matter of defining a particular term (in this case, “puppy”) (Maḥmūd, *Naḥwa*, 35). Similarly, the statements of mathematics are analytic since they define certain terms and draw out the

deductive consequences of those definitions; the conclusions in mathematics repeat what is already contained in the premises. For example, “A triangle is a three-sided plane figure” is an analytic statement that provides the definition of the term “triangle,” and hence its a priori status is trivial. Once such a term and other terms are defined, mathematicians can then deduce certain nonobvious consequences, for example, that the sum of the internal angles of all triangles is equivalent to two right angles. Such consequences may not seem trivial, yet they follow by deductive logic from mathematical definitions and are therefore also analytic and tautologous. They do not depend for their truth on the natural world (Maḥmūd, *Naḥwa*, viii).

Like many logical empiricists, Maḥmūd also regards mathematics as an extension of logic, being derivable from it. According to this “logician” program, which predates logical empiricism, mathematics is deducible ultimately from the axioms and theorems of logic. Even though the theorems of arithmetic or geometry may not seem obvious, they are merely the deductive consequences of the truths of logic along with certain definitions. Since the truths of logic are themselves tautologous and analytic, Maḥmūd denies that reason can be the source of nontrivial a priori knowledge. For example, the law of non-contradiction and the law of the excluded middle are simply definitions of logical connectives such as “not,” “and,” “or,” and “if . . . then.” The linguistic structures of logic and pure mathematics do not refer to reality, but are self-consistent symbolic structures. As he puts it, “Logic and mathematics are both extensions of a single intellectual structure, consisting of analytic propositions that are deduced from one another but do not refer to the facts of natural existence (*ḥaqāʾiq al-wujūd al-ṭabīʿī*)” (Maḥmūd, *Naḥwa*, 52, cf. 138). The failure to distinguish logic and mathematics from empirical science and to understand the differences between them is a common mistake in the history of philosophy, affecting both rationalists like Descartes and empiricists like Mill (Maḥmūd, *Naḥwa*, 159, 120).

Maḥmūd also argues that the Kantian position on Euclidean geometry has been rendered untenable by modern science, particularly the theory of general relativity. Even though Kant considered the axioms of Euclidean geometry to be both synthetic and knowable a priori, twentieth-century physics has discovered that these axioms are simply false as descriptions of space, at least over large distances such as the distance from the earth to the sun (Maḥmūd, *Naḥwa*, 176). Hence, they are not a priori but are every bit as falsifiable as the empirical statements of natural science. But this criticism leads to a difficulty in Maḥmūd’s position that he does not address adequately in this work. If the axioms of geometry are falsifiable by empirical discoveries, then they must contain some empirical content, but then they cannot be purely analytic or tautologous. One might try to resolve this apparent inconsistency (as he suggests very briefly) by distinguishing pure and applied geometry (Maḥmūd, *Naḥwa*, 176). Pure geometry, it could be said, is a consistent axiomatic structure that is both a priori and analytic, but it does not purport to refer to natural phenomena, while applied geometry aims to describe the natural world and is therefore both a posteriori and synthetic. But a strict division is difficult to maintain between pure and applied geometry, or more generally, between two types of mathematical discourse. Moreover, as Reichenbach suggested, even the laws of logic are not immune to revision since there are legitimate proposals to alter the

law of the excluded middle in order to better describe certain phenomena in quantum physics (Reichenbach 1951, 188–90). This type of critique of the analytic-synthetic distinction, later driven home most forcefully by Quine, led many philosophers to reject the distinction in due course and to deny that there are any statements that are entirely devoid of empirical content (for the locus classicus, see Quine 1951, 20–43). If the axioms of mathematics, and indeed the axioms of logic, are not immune to revision based on experience, then there are no pure analytic statements. Eventually, some of the logical empiricists came to view the laws of logic and mathematics as conventions, with different conventions leading to different formulations of empirical laws. This move blurs the line between pure definitions and statements with empirical content and makes it increasingly difficult to maintain a strict distinction between analytic and synthetic statements. In the final chapter of the text, in a discussion influenced by Reichenbach, Maḥmūd acknowledges that our description of space is in part empirical and in part conventional, but he does not grapple with the implications of this admission for the analytic-synthetic distinction (Maḥmūd, *Naḥwa*, 353). It appears that he may not have been aware of the critiques of analyticity, which had already begun to appear at the time this book was being written.

30.2.2. The Verifiability Criterion of Meaning

Another important plank of logical empiricism, alongside the distinction between analytic and synthetic statements, is the criterion of meaning for synthetic statements. The logical empiricists proposed, and Maḥmūd concurred, that the meaning of a synthetic statement was its means of verification:

The meaning of a statement is identical to its means of verification, for if we cannot find a means of verifying it, it is a meaningless statement. This is the principle on the basis of which we reject all metaphysical statements, for we search for a means of verifying these statements but do not find any. (Maḥmūd, *Naḥwa*, 274)

When confronted with any statement, we should first ask which sensory experiences would serve to verify it. If none would, we should eliminate it as meaningless; if there are such experiences, then we can proceed to determine whether it is true or false. Maḥmūd goes on to explain that it is sufficient that a statement be verifiable in principle though not in practice. Statements about the far side of the moon are not to be dismissed as meaningless on the grounds that they cannot be verified (at least at the time he was writing), just as long as they are verifiable in principle (Maḥmūd, *Naḥwa*, 273–75).

Even when modified in this way, the verifiability criterion of meaning was open to objections, at least some of which Maḥmūd discusses explicitly. Perhaps most notoriously, critics raised a question about the status of the verifiability principle itself: was it verifiable? If so, what are the experiences that would verify it, and if not, does that make it meaningless? Maḥmūd attributes the objection to Russell, and in responding to it

takes a leaf from Russell's own philosophical work. In order to resolve certain logical and set-theoretic paradoxes, Russell had proposed a "theory of types," which classified statements into a strict hierarchy. At the first level are statements about individuals, at the second level statements about sets, at the third level statements about sets of sets, and so on. To resolve the paradoxes, all of which involve self-referentiality, one needs to distinguish these levels or types and to segregate statements of one type from statements of another. In a similar fashion, Maḥmūd proposes that the statement of the verifiability principle belongs to a different type from first-order empirical statements; as such, it does not apply to itself. To apply it to itself would be to confuse the first-order language with the metalanguage (Maḥmūd, *Naḥwa*, 277–78). Even if one accepts this reply to the objection, the worry may remain that Maḥmūd does not directly justify the verifiability principle on independent grounds. The closest he comes to doing so is in considering the objection that it may be deemed preferable to reject the principle rather than eliminate almost the entirety of metaphysics, which is the most hallowed part of philosophy. His response is that the verifiability principle is an obvious standard for meaning, since a sentence could not indicate anything at all unless it referred to aspects of experience (Maḥmūd, *Naḥwa*, 275). This response suggests that he thinks the principle is analytic, providing a definition of the term *meaning* itself, though he does not say so explicitly.

Another objection to the verifiability principle, which he also attributes to Russell, is the problem of universal generalizations, such as the statements of natural law that one finds in the sciences, for example, "Gases decrease in volume with an increase in pressure." Such statements cannot be definitively verified, since they refer to a potentially infinite number of particulars. As Hume argued, no matter how many times we have observed such phenomena in the past, it is always an open question as to whether they will continue to obtain in the future (or indeed, have applied to unobserved instances in the past). Hence, such statements are never completely verifiable even in principle. But Maḥmūd responds that the aim is not to verify a statement with certainty, merely with a high degree of probability. This degree of probability "is sufficient by itself to judge the correctness of the sentence and to state that it is a meaningful sentence" (Maḥmūd, *Naḥwa*, 276).

Even before he introduces it explicitly, Maḥmūd demonstrates how the verifiability principle can be used to dispense with statements in traditional metaphysics or "speculative philosophy" (*al-falsafa al-ta'ammuliyya*). Following Reichenbach and Carnap, a frequent metaphysical target in this regard is Hegel, and Maḥmūd derives evident satisfaction in showing the meaninglessness of such Hegelian pronouncements as, "Reason is the substance from which all things derive their being." He imagines an empirically minded scientist querying this statement as follows:

What experiment might I conduct to verify this statement with certainty? In other words, what could I see with my eyes, or hear with my ears, for example, in this tree that would enable me to say afterward that its substance is "reason" and that it derives its being from "reason"? (Maḥmūd, *Naḥwa*, 4–5; cf. Reichenbach 1951, 3–4)

Since there are no such experiences that might verify the statement or falsify it, it is safe to conclude that the philosopher who makes it is “closer to a poet than a scientist,” the crucial difference being that the philosopher claims to be making literal descriptive statements rather than figurative ones (Maḥmūd, *Naḥwa*, 5–6).

As for mundane statements derived from ordinary discourse, Maḥmūd acknowledges that many of them are not *directly* verifiable, but rather indirectly verifiable. For example, he asks us to consider the sentence “The civilization of the West is scientific” (*madaniyyat al-gharb ‘ilmiyya*). He points out that the elements of this sentence refer to millions of particulars, including books, paintings, sculptures, and other cultural artifacts, and it does not have a direct meaning since it does not refer to a single verifiable fact. It does not have a meaning until it is converted to simpler sentences each of which concerns a single particular that can be examined by the senses (Maḥmūd, *Naḥwa*, 130–31). Presumably, the same applies to many other statements that are made in the course of nonscientific discourse.

30.2.3. Certainty, Necessity, and Science

The distinction between analytic and synthetic statements leads to a strict separation between mathematics and natural science. As we have seen, the former is held to be analytic and void of empirical content, while the latter is synthetic and contains verifiable information about the natural world. Moreover, the susceptibility of synthetic statements to empirical verification and falsification comes with a price, since it means that the statements of science never achieve certainty but are always held with a degree of probability. The quest for certainty in natural science is misguided. It has misled some philosophers (such as Plato) into devaluing natural science because it does not achieve the certainty associated with mathematics, and misled others (such as Kant) into seeking a way of achieving certainty in the natural sciences (Maḥmūd, *Naḥwa*, 163, 208). Rather than searching for certainty, philosophers must realize that empirical knowledge is based on induction and therefore always comes with degrees of probability. Maḥmūd points out that this has spurred some philosophers, including some logical empiricists, to develop an inductive logic, which would enable us to confer a definite degree of probability on the laws and generalizations of empirical science. But he rejects these attempts on the grounds that not all probabilities can be given a definite value, though he does not further justify this claim (Maḥmūd, *Naḥwa*, 214–15).

A related error made by major figures in the history of philosophy is to imbue the laws of nature with a necessity that is simply not found in the natural world. Laws of nature, such as “Gases decrease in volume with an increase in pressure,” are not necessary truths, as many philosophers have held. That is because there is no necessary connection, as Hume showed, between cause and effect. Hence, there is no necessity associated with natural laws, and their negation is not self-contradictory. Maḥmūd attempts to diagnose the tendency of rationalist philosophers to imbue causation with necessity and to regard the causal laws of the sciences as necessary propositions. He says that the

rationalists transfer the logical necessity that obtains between the statement of a law and its deductive consequences to the law itself. That is, they observe rightly that the statement of the general law about gases leads necessarily to the particular conclusion that the gas in this particular container decreased in volume when the pressure increased, but they conclude wrongly that the statement of the law itself is necessarily true. There is a relation of logical necessity between a general premise and a particular conclusion that follows deductively from it, but that is not to say that the premise itself is somehow necessary (Maḥmūd, *Naḥwa*, 292–309). Moreover, Maḥmūd speculates that the projection of necessity onto nature may reflect a need to suppose that there is a mind controlling the universe:

Perhaps what tempts the rationalist philosopher into making this addition [of necessity] is handing over the reins of the universe to a “mind” that controls it as it likes, for if the regular occurrence of two successive phenomena is a necessary occurrence and is necessarily true, then this necessity must have a necessitator (*mūjib*), and this necessity would have a mind that has laid down laws (*sunan*) that it has no choice but to follow. (Maḥmūd, *Naḥwa*, 304)

However, he maintains that contrary to what many traditional philosophers have argued, the propositions of empirical science are neither metaphysically necessary nor epistemically certain.

With empirical verifiability comes the need for precision and the imperative to quantify statements in order for them to be genuinely testable. Maḥmūd observes that quantitative methods are ubiquitous in modern natural science and that the social sciences must follow suit. For example, the statement “Some Egyptians are poor” is not a scientific statement. To transform it into a testable scientific statement, the researcher must specify the exact proportion of Egyptians who are poor and indicate the annual income level that would define poverty (Maḥmūd, *Naḥwa*, 326–27). Qualitative statements must be translated into quantitative statements for the sciences to progress, and such advances have now been made in biology as well as psychology. He mentions behaviorism in psychology, in particular, as a movement that attempts to observe the outward behavioral signs of mental capacities and considers these behaviors to be quantifiable (Maḥmūd, *Naḥwa*, 340–41). In response to the objection that human traits cannot be quantified, Maḥmūd responds that prominent historical figures in philosophy, including Plato and Aristotle, have indeed tried to quantify human character traits and other aspects of the human and social domain. But it is not clear that the type of quantization attempted by these and other philosophers is closely related to that advocated by Maḥmūd. Moreover, citing these precedents hardly vindicates the possibility of quantifying human and social phenomena, since few would now claim that their efforts in this regard were successful. Finally, he recognizes that this drive for quantifying the social sciences and the human realm leads to an adverse reaction among the lay public and even among some scientists, since humans are supposed to have spirits that cannot be weighed or measured. But Maḥmūd retorts that these same people contradict

themselves since they believe that humans are held to account on the Day of Judgment, when their good and evil deeds are put in the balance (Maḥmūd, *Nahwa*, 317).

30.2.4. Conceptual Analysis and the Role of Philosophy

How does philosophy figure in the division of meaningful statements into analytic and synthetic, and the application of the verifiability principle? We have already seen that traditional metaphysics is eliminated on this logical empiricist account. But what role is left for philosophy in general? Philosophy cannot aspire to make empirical discoveries, since that is the domain of the sciences, both natural and social. After making this very clear, Maḥmūd adds that the proper function of philosophy is to aid science by defining scientific concepts with precision and in empirical terms. The role of the philosopher is not to undertake original scientific research but to analyze those scientific concepts that have been left unanalyzed, especially those that are problematic or controversial. But this leads immediately to the following objection: Why not leave this task of conceptual analysis to the scientists themselves? In response, he acknowledges that this would be preferable and is anyway what occurs in most instances, but that this is not always the case, and that the analysis of meanings or concepts requires certain logical skills different from those usually associated with scientific research. As for what is meant by “analysis” in this context, Maḥmūd allows that it may not be possible to specify it with precision, but says that all instances of analysis are united by a kind of family resemblance (thus relying on an idea often associated with Wittgenstein). Presumably, he means that there are no necessary and sufficient conditions that can be associated with the concept of philosophical analysis, but that there is a loose cluster of attributes that accompany the analytic method, though he does not attempt to list some of these features (Maḥmūd, *Nahwa*, 7–13).

One question on which Maḥmūd seems to equivocate has to do with whether this method should also be applied to ordinary language. Partly under the influence of logical positivism, some philosophers (notably J. L. Austin and Gilbert Ryle) undertook an investigation of everyday discourse, devoting themselves mainly to the analysis of concepts drawn from ordinary language. But most of the logical positivists themselves regarded these efforts to analyze common discourse as misguided, since they held that ordinary language is imprecise and riddled with errors. Maḥmūd appears to concur and explicitly distances himself from the preoccupation with ordinary language, at least in some passages: “The task of philosophy according to the proponents of logical positivism is the analysis of expressions and utterances with respect to their general logical structure, not with respect to their manners of use in any particular language” (Maḥmūd, *Nahwa*, 66). But on some occasions in this work and elsewhere, Maḥmūd seems to allow that ordinary language might also be profitably analyzed using this method (see, e.g., *Khurāfat*, 5). He refers to philosophy as the “science of ‘meaning’” and writes that “we seek an inquiry that examines the logic of language insofar as it is an instrument that describes our ways of conducting ourselves in the world in which we live” (*Nahwa*, 117,

126). This suggests that it may be useful to investigate ordinary language, but the examples that he puts forward to support the view mostly illustrate the claim that the surface structure of language is often misleading and distorts reality. For instance, the subject-predicate structure of many ordinary statements (e.g., “Roses are red”) encourages us wrongly to think that properties (e.g., “redness”) are separate from the objects that possess those properties. General terms also mislead us into thinking that there are universals corresponding to them, whereas in reality there are only concrete particulars that are similar in certain respects (a position associated with nominalism in the history of philosophy). The sentence “Roses are red” is not directly verifiable but must first be translated into many sentences that refer to particulars, of the type “This rose is red.” In addition, in ordinary language there are many empty terms, such as *jinn*, and hence the structure of a sentence such as “The jinn are red” is very different from the sentence “Roses are red” (Maḥmūd, *Naḥwa*, 92, 135). Clearly, then, analyzing ordinary language has the effect mainly of pointing out its shortcomings and distortions.

Thus, for Maḥmūd, philosophical analysis consists primarily in constructing definitions of the terms of science. Though this task may strike some as unduly restrictive, the idea of philosophy as a close ally, if not a junior partner, of the scientific enterprise is certainly not unique to the logical empiricists and is one that would sit well with a range of figures in the history of philosophy. It is also a task that has occupied many philosophers since the second half of the twentieth century, as philosophers have often joined forces with scientists in analyzing problematic concepts drawn from a range of sciences. But there are two questions that are raised by this conception of philosophy that might have merited further discussion. First, on this account, it is difficult to maintain, as Maḥmūd does, that philosophers should not interfere in the scientific enterprise: “I repeat that we do not intend in scientific philosophy to participate with scientists in their research; rather [philosophy] is scientific in that it is primarily concerned with analyzing the propositions of science, and it has succeeded through analysis in achieving significant and far-reaching results” (Maḥmūd, *Naḥwa*, ix). He also insists:

In this book, we do not intend to wear the garb of scientists, and to pursue the business of the natural scientist or psychologist; what we intend to establish firmly is that any linguistic expression that contains one or more words that cannot yet be translated into the language of equations and numbers is an expression that does not have a meaning that can be discussed and debated by researchers. (*Naḥwa*, 341)

Since the kind of clarificatory enterprise that he advocates is likely to lead to some scientific concepts being found incoherent, improperly defined, equivocal, and so on, it would appear that this would inevitably lead philosophers to interfere in science. If, as he also puts it, philosophers receive from scientists their first principles, and analyze them to uncover hidden assumptions, then there is certainly a potential for overlap in the functions of scientists and philosophers (Maḥmūd, *Naḥwa*, 336). Second, Maḥmūd also insists that as sciences mature and become quantitative, they split off from philosophy, as astronomy, chemistry, and zoology have done, and as psychology and sociology

are in the process of doing (*Naḥwa*, 315). But this seems to lead to the conclusion that philosophy will eventually be made redundant and will not have any function left to serve. Perhaps he would respond to this concern by saying that the empirical parts of the various sciences split off but that the analytic role of philosophy in those sciences remains. The demarcation between the sciences and philosophy may be a pragmatic one, with the more empirical aspects being the domain of science proper and the more conceptual aspects being the province of philosophy.

Even if one accepts this conception of philosophy, there are surely parts of philosophy that do not lend themselves to the function that Maḥmūd envisages, and one might wonder what might become of ethics, aesthetics, and political philosophy, among others. He does not devote a great deal of attention to ethics and aesthetics in this work, but he does provide some indications as to their status and place in this scheme, and his account agrees largely with that of many logical empiricists. In his brief discussions of ethics and aesthetics, Maḥmūd is clear that he thinks that value judgments are relative. Moral and aesthetic terms indicate a certain emotional reaction in the speaker:

The word “beauty” and related words do not refer to any actual thing in the world of external objects; they refer rather to a psychological state (*ḥāla nafsiyya*) that is sensed by the speaker. There is nothing in the “beautiful” sunset but a cloud tinted with colors that can be specified in terms of the wavelengths of their light; rather the “beauty” in them pertains to the mind of the observer. (*Naḥwa*, 108)

This leads directly to the conclusion that if one observer pronounces a scene to be beautiful and another states that it is not beautiful, there is no contradiction between their statements. That is simply because the two statements do not apply to the same state of affairs. As Maḥmūd puts it, there is no more a contradiction here than in the case in which one speaker says that he feels hungry while another says that he does not (*Naḥwa*, 108). Thus, ethical and aesthetic pronouncements are merely reflections of the subjective state of the observer and are not objective judgments concerning states of affairs in the world. Far from being categorical imperatives or a priori truths revealed by reason, as Kant held, “logical analysis has revealed that judgments that refer to [ethical and aesthetic] values are not part of knowledge at all” (*Naḥwa*, 359).

This “emotivist” position in ethics and aesthetics was widely shared by the logical empiricists, but it was among the least influential aspects of their philosophical outlook. The view was seen by many other philosophers to be untenable in light of the radical relativism and subjectivism that follows from it. Maḥmūd attempts to allay such fears by pointing out that according to the theory of relativity, certain physical quantities that were once thought to be absolute have been shown to be relative, such as space and time. But as he himself acknowledges, space and time are not relative to the psychological states of human subjects (and hence subjective), but relative to a frame of reference. Moreover, even though space and time, when considered separately, are relative to a reference frame, the structure of space-time is not, and hence, certain absolute quantities remain in physics. Indeed, physics would not be possible without such absolute

quantities. These two disanalogies between his conception of ethics and aesthetics, on the one hand, and relativistic physics, on the other, render the comparison misleading at best.

Maḥmūd makes it clear that what holds for aesthetic terms and statements also holds for ethical terms and statements, though he dwells more on aesthetic than ethical examples, perhaps because it would have been more provocative to offer an elaborate defense of relativism concerning ethics. He also insists that his relativist stance toward value would not change even if there were unanimity among people when it comes to evaluative judgments, since his position does not arise from perceived ethical disagreement among individuals or groups, but rather as a result of an analysis of the meanings of evaluative terms:

The conclusion of this discussion is that expressions that refer to aesthetic value or ethical value . . . do not indicate any referent that is external to the human being, who uses them in his utterances to express an emotion that he feels and perhaps intends to evoke in his hearer. (Maḥmūd, *Naḥwa*, 113)

If the foundations of ethics are to be found in the emotional states of ethical observers, then there is presumably no room for normative ethics in philosophy. Any attempt to provide ethical principles that would serve to distinguish right from wrong or good from evil is misguided and ought not to be part of the philosophical enterprise. This relativist and subjectivist conception of ethics is of course difficult if not impossible to reconcile with a standard monotheistic religious outlook. Maḥmūd argues that the fact that logical empiricism does not presume to lay down ethical principles means that it does not meddle in religion or normative ethics (Maḥmūd, *Naḥwa*, 29). However, he does not address the evident tension between ethical relativism and absolutism, thereby avoiding an overt confrontation with the precepts of traditional monotheism.

30.3. INFLUENCE AND LEGACY

Zakī Najīb Maḥmūd was not without influence in Egypt and the Arab world. He taught innumerable students in Cairo, he wrote regularly in the daily press, several books and doctoral dissertations were written about him, at least two Festschriften were dedicated to him, and a number of prominent Arab intellectuals were concerned to respond to and comment upon his work. Yet his writings did not give rise to a logical empiricist movement in the Arab world, nor did the ideas of logical empiricism spread widely. There are of course numerous factors that might be cited to explain why there is no comparison between his influence among Arabic speakers and, say, Ayer's among Anglophones. But one contributing factor may well be the relative lack of serious engagement in his logical empiricist works with the Arab-Islamic philosophical tradition. Given that he appears intent on conveying contemporary Western philosophical ideas to an Arab audience,

there is little attempt to relate these ideas to the philosophical positions and arguments that were prevalent in the Arab-Islamic philosophical tradition.

There are a number of places in this text where it might have been appropriate to anchor the discussion in relevant debates in the history of Arab-Islamic philosophy. For example, the discussion of causation, necessity, and natural law could have provided an opportunity for Maḥmūd to bring in the work of Arab-Islamic philosophers on causation and to relate contemporary views about causation to historical debates on the topic, but he refrains from doing so. One of the classic statements of the necessitarian view of causation that he critiques can be found in Ibn Rushd's account of the causal nexus, particularly in his well-known debate with al-Ghazālī in *Tahāfut al-Tahāfut*. If it had been related to this debate, the account that Maḥmūd provides of causation might have been more meaningful and relevant to at least those of his Arab readers who would have been familiar with elements of that debate. To be sure, on one occasion, in the course of discussing the importance of quantifying the social world, Maḥmūd mentions al-Kindī and al-Fārābī, stating that their views of the universe were hierarchical and posited different levels or degrees within the social world as within the natural world. He cites this as evidence that they exhibited a tendency toward a quantitative construal of human affairs. However, it is revealing that this questionable interpretation of these two Arab-Islamic philosophers references not the original sources, but the work of the European Orientalist T. J. De Boer (Maḥmūd, *Naḥwa*, 322).

Arguably, a more important reason for the relative lack of influence of Maḥmūd's logical empiricist views on Arab society pertains to their marginal relevance to the concerns and preoccupations of that society. In a society in which scientific and technological progress had not yet taken hold, a philosophical movement whose central purpose was so closely associated with the concepts of modern science might well be regarded as somewhat esoteric. At a time when the Arab world was gripped by the problems arising from decolonization and foreign occupation, the absence of democratic governance and representative institutions, and the lack of social justice and disparities of wealth, among other pressing concerns, logical empiricism may have struck many readers as overly theoretical. To be sure, there are passages in Maḥmūd's work on logical empiricism where he discusses its social and political implications, but these are few and far between. He emphasizes the collaborative and nonhierarchical nature of the scientific enterprise in general, and the egalitarian spirit that prevailed among the group of philosophers and scientists constituting the Vienna Circle in particular (Maḥmūd, *Naḥwa*, 61, cf. 11). He also claims, more controversially, that denying necessity in the natural world has political and social ramifications, since it leads to a view of the world as dynamic and full of possibility (Maḥmūd, *Naḥwa*, 309). But he nevertheless admits that analytic philosophy has by and large turned away from the more practical problems that humanity faces in both private and public life (Maḥmūd, *Naḥwa*, 347–48).

It is perhaps this lack of attention to social and political questions, and with it the threat of irrelevance, that eventually led Maḥmūd away from writing on logical empiricism. His logical empiricist writings had less of an impact than his later writings on Arab culture, which were more widely disseminated and discussed among the wider Arab

public. In fact, his positions on culture and modernity were strongly criticized from various directions, by advocates of political Islam and proponents of secular socialism alike. Maḥmūd's views on the state of Arab society and its relationship to both tradition and modernity have not been the focus of this chapter, though they were discussed briefly in section 30.1, and that discussion can serve as a backdrop to some of the criticisms that his work encountered.

Several critiques of Maḥmūd's views on tradition and modernity rightly take issue with his simplistic interpretations of the Arab-Islamic tradition, as well as his (at times) naive embrace of Western liberal democracy. (For a trenchant critique along these lines, see, for example, ʿĀmil 1974 and Sidā 1990). It may be objected on his behalf that in many of his writings on the Arab-Islamic tradition and modernity, he emphasizes the need to reconcile the former with the latter and to articulate a cultural formula that would bring together elements of the Arab-Islamic heritage with features of modern liberal democracy. But given that his reading of that heritage frequently lacks nuance and that his interpretation of tradition is permeated by a cultural essentialist tendency, it is not a stretch to say that his attitude toward tradition is an instrumentalist one and that he appears to use the idea of tradition mainly to promote the values of the modern liberal West. Since Maḥmūd's early writings clearly enunciate a thoroughly secular outlook as well as a relativist attitude toward ethics, the later invocation of tradition and the adoption of an "Islamic viewpoint" (to use the title of one of his books, *Ru'ya Islāmiyya*) might rightly be regarded as a nominal concession to his cultural milieu. Moreover, in at least some of his essays there is a certain uncritical attitude to Western liberal democracy that overlooks many of its shortcomings. For him, it seems to be something of a coincidence that modern Western civilization also happens to be the civilization of colonialism.

Maḥmūd may not have had many direct disciples and the philosophy of logical empiricism may not have gained many adherents in the Arab world, but his broader ideological framework and his attitude toward Arab-Islamic society have been shared by a significant number of Arab intellectuals over the past several decades. It is fair to say that he represents a liberal tendency among Arab thinkers whose enthusiasm for Western scientific prowess, technological progress, social order, and political stability tends to obscure the West's involvement in colonialist domination, capitalist economic hegemony, unprecedented militarism, and control of global resources. Moreover, the call to embrace Western civilization evinces a certain inattention to the power relations that exist between the Arab world and the West. The fact that many Western ideals, such as liberty and progress, have been used to oppress nonwesterners and justify colonial domination means that they need at the very least to be reformulated and reinterpreted before they can be adapted to Arab societies.

As for the effort to reconcile tradition with modernity, it is an endeavor that is shared by Maḥmūd and many of his critics. Even though it is arguably the problematic that has dominated Arab intellectual life for at least a century, it seems to rest on a questionable presupposition that is rarely brought to the fore. That presupposition is common to many of those who have weighed in on this question, no matter what their position on the proper mix of the traditional and modern. The question as to which elements of the

tradition to preserve and which to discard seems misconceived, since it presumes that one is in a position to resolve the matter or to deliberately determine its outcome. It is analogous to the futile effort in some quarters to decide by fiat which linguistic items to retain in the lexicon and which to discard. Like language, cultural production is largely an organic affair, and it would be misguided to try to ordain which aspects of one's cultural heritage to save and which to consign to the dustbin of history. A healthier attitude might be to engage the Arab-Islamic cultural tradition, including the philosophical tradition, in an interpretive process that aims to understand it on its own terms, making it available to be accepted or rejected as the case may be.

REFERENCES

- ‘Āmil, Mahdī. 1974. *Azmat al-Hadāra al-‘Arabiyya am Azmat al-Būrjwāziyya al-‘Arabiyya?* [*The Crisis of Arab Culture or the Crisis of the Arab Bourgeoisie?*]. Beirut: Dar al-Fārābī. Reprinted 1989.
- Maḥmūd, Zakī Najīb. (*Afkār*) 1983. *Afkār wa-Mawāqif* [*Thoughts and Positions*]. Cairo: Dār al-Shurūq.
- Maḥmūd, Zakī Najīb. (*‘Arabī*) 1990. *‘Arabī bayna Thaqāfatayn* [*An Arab between Two Cultures*]. Cairo: Dar al-Shurūq.
- Maḥmūd, Zakī Najīb. (*Jannat*) 1947. *Jannat al-‘Abīt aw Adab al-Maqāla* [*The Fool's Paradise, or the Art of the Essay*]. Cairo: Maktabat al-Adab.
- Maḥmūd, Zakī Najīb. (*Khurāfat*) 1953. *Khurāfat al-Mitāfiziqā*. Cairo: Maktabat al-Nahḍa al-Miṣriyya.
- Maḥmūd, Zakī Najīb. (*Mawqif*) 1983. *Mawqif fi l-Mitāfiziqā*. Cairo: Dār al-Shurūq.
- Maḥmūd, Zakī Najīb. (*Nahwa*) 1956. *Nahwa Falsafa ‘Ilmiyya* [*Toward a Scientific Philosophy*]. Cairo: Maktabat al-Anglo al-Miṣriyya. Reissued 1980.
- Maḥmūd, Zakī Najīb. (*Ru’ya*) 1987. *Ru’ya Islamiyya* [*An Islamic Viewpoint*]. Cairo: Dār al-Shurūq.
- Maḥmūd, Zakī Najīb. (*Tajdid*) 1971. *Tajdid al-Fikr al-‘Arabī* [*Renewal of Arab Thought*]. Cairo: Dār al-Shurūq.
- Maḥmūd, Zakī Najīb. (*Thawra*) 1956. *Wa-l-Thawra ‘alā al-Abwāb* [*On the Threshold of Revolution*]. Cairo: Maktabat al-Anglo al-Miṣriyya.
- Maḥmūd, Zakī Najīb. (*Wajhat*) 1967. *Wajhat Naẓar* [*A Point of View*]. Cairo: Maktabat al-Anglo al-Miṣriyya.
- Quine, W. V. 1951. “Two Dogmas of Empiricism.” *Philosophical Review* 60: 20–43.
- Reichenbach, Hans. 1951. *The Rise of Scientific Philosophy*. Berkeley: University of California Press.
- Sidā, ‘Abd al-Bāsiṭ. 1990. *Al-Waḍ‘iyya al-Mantiqiyya wa-l-Turāth al-‘Arabī: Namūdḥaj Fikr Zakī Najīb Maḥmūd al-Falsafī* [*Logical Positivism and Arab Tradition: The Case of the Philosophical Thought of Zakī Najīb Maḥmūd*]. Beirut: Dar al-Fārābī.
- Uebel, Thomas. 2011. “Vienna Circle.” In *Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta. Summer 2012 ed. <http://plato.stanford.edu/archives/sum2012/entries/vienna-circle/>.