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The World as Will and Representation

Schopenhauer

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While historians of nineteenth-century German philosophy have traditionally underestimated the influence of Schopenhauer's thought, recent scholarship has demonstrated that Schopenhauer's pessimism changed the trajectory of German philosophy[1]. This chapter summarizes Schopenhauer's philosophical system in order to underscore that his doctrine of pessimism cannot be confined to his ethics, but rather informs every aspect of his philosophy.

Schopenhauer scholars have often pointed out that Schopenhauer's contributions to the history of Western philosophy have not been sufficiently recognized.[2] Schopenhauer's dismissal may be owing to a number of factors: his thought does not fit neatly into the narrative of German philosophy; Nietzsche and Heidegger – two of the most prominent thinkers in German philosophy – were hostile to his philosophy[3]; Lukacs condemned Schopenhauer's thought as the paradigm of bourgeois philosophy.[4] Of course the most obvious explanation would be that he did not contribute anything significant to nineteenth-century philosophical thought. However, the profound impact that Schopenhauer's thought has had on subsequent artists and thinkers belies such a dismissal.[5]

Some significant developments have taken place in the last decade to invite a reassessment of the value of Schopenhauer's philosophy and his impact on philosophical thought, particularly in regard to his pessimism. In 2006, Joshua Foa Dienstag published a work entitled *Pessimism: Philosophy, Ethic, Spirit*, which is both an explanation and defense of pessimism. Dienstag argues that pessimism is a distinctly modern development, and that pessimistic thinkers such as Schopenhauer provide a compelling alternative to the optimistic assumptions of post-Enlightenment political thought.

More recently, Frederick Beiser (2016) published *Weltschmerz: Pessimism in German Philosophy, 1860–1900*. In this impeccably researched study, Beiser argues that the neo-Kantian philosophy that marked late-nineteenth-century German thought should

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be read as a reaction against pessimism, a position inaugurated by Schopenhauer. Thus not only was Schopenhauer's doctrine of pessimism a significant historical development, but it also altered the trajectory of nineteenth-century German philosophy. Beiser locates the resurgence of pessimism in the rediscovery of the problem of evil after the collapse of theism, a resurgence and rediscovery initiated by Schopenhauer. While German neo-Kantian philosophy was embracing positivism in the latter half of the nineteenth century, Schopenhauer's philosophy was becoming widely read and praised throughout Germany because it spoke to the fundamental questions of human life. The popularity of his doctrine and that of the pessimistic philosophers who succeeded him forced neo-Kantians – and later positivists – to reorient their approaches so they too could provide a philosophy relevant for life. Thus it is not an exaggeration to say that Schopenhauer's philosophy set the tone for German philosophy until well after the end of the nineteenth century: "The neo-Kantians would probably have continued down the positivist trail- they would probably have persisted in their dogmatic slumbers- if it had not been for one man: the old scrooge of Frankfurt" (Beiser, 2016 p. 21).

In light of the impact of Schopenhauer's pessimism on German philosophy, it makes sense to frame a discussion of Schopenhauer's philosophy around his pessimism. Schopenhauer's pessimistic worldview stems from his metaphysics: because the world is will, pessimism is the appropriate response to existence. As such, his pessimism is not simply one insight among many that Schopenhauer provides in his philosophical system. Rather his pessimism informs every facet of his system; his aesthetics, ethics, ontology and epistemology. Consequently, to consider his pessimism requires examining his philosophy as a whole.

The thrust of this chapter will be to summarize Schopenhauer's philosophy while highlighting the pessimistic strains, both implicit and explicit, that run through his thought. Before doing so, however, it is important to understand what pessimism is. Thus I will first describe pessimism, drawing both from Schopenhauer scholarship and from Diensteg's study. I will then provide an outline of Schopenhauer's system, pointing to the pessimistic consequences of various aspects of his system. I will begin with his epistemology and metaphysics, followed by his aesthetics and ethics. Schopenhauer provided a comprehensive account of his philosophical system in his major work, *The World as Will and Representation volumes I and II* (hereafter referred to as WWRI and WWRII[6]) and the basic outline of his system remained consistent in all of his works. Therefore I will draw most heavily on his masterwork, and employ his other writings to supplement my summary and analysis.

Pessimism

While Schopenhauer is regarded as the greatest pessimist in the Western tradition, his pessimism has been met, in the words of one scholar, with "disdainful mockery or well-intentioned neglect" (Migotti 1995). Perhaps the most common manner of dismissing Schopenhauer's pessimism is to argue that, rather than providing a compelling position regarding the nature of the world, it is merely a reflection of his notoriously irascible temperament.[7]

Schopenhauer refers to his position as pessimistic only in his later writings, never explicitly identifies his philosophy as pessimistic in his published works, and never spells

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out which aspects of his thought encompass pessimism.[8] Some scholars have argued that his pessimism is a position regarding human dispositions while others have argued that it transcends human dispositions to encompass the nature of all existence.[9] Naturally these different approaches inform how scholars characterize Schopenhauer's pessimism. For instance, Mark Migotti (1995), who assumes a metaphysical pessimism, states that it comprises three theses: the metaphysical thesis that all life is suffering, the conative thesis that all striving is vain and futile, and the proairetic (i.e. regarding the giving or withholding of assent) thesis that life is not choice-worthy.[10]

Joshua Foa Deinstag, on the other hand, characterizes pessimism in a manner that comes closer to the dispositional interpretation. Pessimism entails the view that time is a burden, that the course of history is ironic, that freedom and happiness are incompatible, and that human existence is absurd (Diensteg 2006, p. 19). While Deinstag delineates the primary features of pessimism, he argues that pessimism is better understood as a problematic rather than as a doctrine. Pessimism emerges because of a newfound appreciation of the futility of both progress in history and the accomplishments of reason. Important to Deinstag's account is the centrality of time: pessimism rejects the possibility of progress in history and recognizes that time is experienced as a burden for humans. Because pessimism presupposes a kind of historical consciousness, Dienstag asserts that it is a uniquely modern approach.[11]

Excluded from these possible interpretations of Schopenhauer's pessimism is the commonplace understanding of pessimism, a "glass half full" orientation to states of affairs. Such an account holds that pessimism is a human attitude that tends to anticipate or emphasize undesirable states of affairs. With this understanding, pessimism would collapse into realism if things were, in fact, as bad as they appear to the pessimist. Such a position would regard, then the relationship between one's beliefs about the world and the accepted beliefs or actual state of affairs in the world. Such an account fails to capture Schopenhauer's position, whether one argues for the disposition or metaphysical view. Schopenhauer's pessimism encompasses a metaphysics, ethics, and epistemology, and it is not simply a stance in relation to common views. To make this clear, if Schopenhauer's philosophy proved to be correct or commonly accepted, his doctrine could no longer be called pessimistic in the quotidian sense but it would still be pessimistic in the sense outlined above.[12]

In what follows, I will highlight the pessimistic features that run through Schopenhauer's system; features which apply to both Migotti's and Deinstag's depictions of what pessimism entails.

The World as Representation

Schopenhauer begins his master work with the truth he claims is the most certain and most general of all truths: the world is my representation:

> [N]o truth is more certain, more independent of all others, and less in need of proof that this, namely that everything exists for knowledge, and hence the whole of this world, is only object in relation to subject, perception of the perceiver, in a word, representation (WWRI, p. 3).[13]

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Schopenhauer does not argue for this claim because he assumes that the reader is already familiar with Kant's argument for transcendental idealism in the Transcendental Aesthetic, an argument that Schopenhauer finds irrefutable,[14] as well as his own proofs from *The Fourfold Root of Sufficient Reason*.[15] However, Schopenhauer revises Kant's transcendental idealism considerably, and even argues that his own position is closer to that of Berkeley. Schopenhauer dedicates an appendix to *The World as Will and Representation* in order to outline where his own thought stands in relation to that of Kant. He posits that while Kant correctly recognizes the distinction between phenomenon and thing-in-itself,[16] Kant mistakenly assumes that sensation has its source in something outside the subject. If this were the case, Schopenhauer argues, sensation would have a causal relationship with the thing-in-itself, a position that is incoherent insofar as causality exists only in the phenomenal realm (WWRI, p. 436).[17] For Schopenhauer, the world as representation is constituted by two inseparable and essential components: subject and object. He argues that although Kant did not go far enough in recognizing that the object is constituted entirely by the subject, Kant was the first to recognize that the universal forms of every object, namely space, time and causality, reside *a priori* in the consciousness of the subject.

Schopenhauer departs from Kant's understanding of the forms of our cognition in two additional ways. Unlike Kant, Schopenhauer states that the *a priori* forms of experience are all aspects of the principle of sufficient reason in its various aspects. Schopenhauer's dissertation, *The Fourfold Root of Sufficient Reason*, provides a detailed analysis of this principle. He borrows the general form of the principle from the philosophy of Christian Wolff: Nothing is without a ground or reason why it is. For Schopenhauer the principle has four aspects, each regarding a different cognitive faculty and a different class of objects, and any possible explanation falls under one of these aspects:

1. Regarding the class of objects that concerns the faculty of understanding, objects of experience, the principle of experience appears as the law of causality: "if a new state of one or several real objects appears, another state must have preceded it upon which the new state follows regularly, in other words, as often as the new state exists" (FFR, p. 53).
2. Regarding the class of objects that concerns the faculty of reason, abstract representations or concepts, the principle asserts that if a judgment is to express knowledge, to receive the predicate true, it must have sufficient ground (FFR, p. 116).
3. Regarding the forms of intuition, space and time, the principle is that all parts are in mutual relation such that every part is conditioned by another (FFR, p. 194).
4. Finally, the principle concerning the class of the actions of a subject, the human will, is that every decision is preceded by a motive that serves as its necessary ground (FFR, p. 212).

Schopenhauer's distinction between the first and second class of objects above points to a second way that Schopenhauer departs from Kant, which is regarding his classification of perceptions. Schopenhauer divides representations into two classes, intuitive and abstract. Because Kant failed to recognize this distinction, he argues, Kant mistakenly imported concepts into perceptions. Schopenhauer argues that immediate perceptions are not conceptual; only space, time and causality condition perceptual

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objects.[18] Contrary to Kant's Transcendental Analytic, Schopenhauer argues that concepts belong only to abstract representations.

For Schopenhauer, all concepts originate in perceptual representations: in his words, they are "representations of representations." For Schopenhauer, like Kant, reason does not allow us to expand our theoretical knowledge beyond perception, for concepts are only valid when they originate, either directly or indirectly, in perceptions.[19] In Schopenhauer's objectionable metaphor, reason is "feminine in nature; it can only give after it has received" (WWRI, 50). The value of reason is thus instrumental: it does not expand our knowledge but rather allows us to utilize the knowledge gained through intuition with greater facility. Because of abstract knowledge, we can organize out knowledge (the advantage of science), call knowledge to mind (the advantage of deliberation) and communicate it to others (the advantage of speech).

Such an understanding of reason leads Schopenhauer to view the fruits of reason with modesty. Science, a product of reason, does not result in more certain knowledge, for science is nothing other than the systematic arrangement of abstract knowledge. Moreover, reason is not the source of virtue: unlike Kant, Schopenhauer denies that reason can set ends and also denies that rational deliberation can lead one to the good. Rather, reason can only play the instrumental role of allowing one to entertain various strategies to reach one's ends, ends whose source will turn out to be outside of reason. Finally, philosophy, the highest fruit of our reason, cannot go beyond perceptual knowledge: philosophy only raises to abstract knowledge what is discovered through perception:

> Philosophy can never do more than interpret and explain what is present at hand [*Vorhandene*]; it can never do more than bring to the distinct, abstract knowledge of the faculty of reason the inner nature of the world which expresses itself intelligibly to everyone in the concrete, that is as feeling (WWRI, p. 271).

Philosophy can never reveal the origin or purpose of the existence of the world; rather, it can only describe what the world is. The difference between philosophy and all other abstract knowledge resides in its comprehensiveness: the task of philosophy is to repeat in the abstract the truth of the world in its entirety.

While Schopenhauer's initial description of representation does not entail pessimism, we see already a diminished status in the human condition. Schopenhauer's description of reason as instrumental deprives it and, one could argue, deprives the human species of its vaunted status: the only difference between the intellect of humans and all other animals is the human capacity for abstraction. In addition, his account of representation compromises the status of the most celebrated intellectual accomplishments of humanity, namely the sciences and philosophy.

The World as Will

Schopenhauer introduces his notion of the will in an investigation into the content of representations. One may ask why Schopenhauer assumes that the world cannot simply be made up of representations alone. His account of representation points to an

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answer: since in representations the subject and object are mutually co-constituting, the ground for both must be something other than subject or object and thus outside of representation. Yet this explanation is not wholly convincing: why can't two mutually constituting entities, namely subject and object, exhaust what makes up existence? Schopenhauer's answer is that representations alone cannot explain why the world has significance (*Bedeutung*), i.e. why it elicits an effective response, for us.[20]

The subject would seem the most likely candidate for the source of meaning for our representations. However, according to Schopenhauer's account of subjectivity, this possibility is ruled out. Subject and object are mutually constituting, but there is no causal relationship between the two. Recall that causality for Schopenhauer, as for Kant, is simply a form of cognition. Thus it accounts for how the subject constitutes objects and cannot explain the relationship between subject and object, which an account of the subject being affected by the object would require.

No form of representation can explain the significance of the world. Just as the subject cannot provide its significance, neither can the object, for the object is nothing other than the representation. Nor can higher order bodies of knowledge: mathematics does nothing more than describe the form of representations, and the sciences, whether as morphology or etiology, only explain how representations relate to one another.[21] Schopenhauer makes an additional point regarding etiology. While etiology explains how causality operates, it cannot explain natural forces. Schopenhauer describes natural forces repeatedly as "occult qualities," as they "remain eternally strange to us … they stand before us like hieroglyphics that are not understood" (WWRI, p. 97).

Schopenhauer posits that while the sciences lead back to natural forces that cannot be explained, such mystery is absent when we consider the motivated actions of our own bodies:

> [T]he answer to the riddle is given to the subject of knowledge appearing as an individual, and this answer is given in the word Will. This and this alone gives him a key to his own phenomenon, reveals to him the significance and shows him the inner mechanism of his being, his actions, his movements (WWRI, p. 100).

Our bodies are known to us in two ways, as objects whose motions can be explained in terms of physical laws and as objects whose movements are explained in terms of our own wills. If one considers her body in the former sense, the significance of its motions are as mysterious as those of any other body. However, if one considers her own body in the latter sense, the significance of the body's movements are clear. Therefore, the absence of riddle in regard to our own bodies, which is made possible in our own awareness of our willing, can provide the key to understanding all other bodies according to Schopenhauer.[22]

Schopenhauer's argument for the will grounds the central tenets of his philosophy. Thus it is important to underscore how far Schopenhauer has departed from the methodology of both Kantian and post-Kantian philosophy. There is no ironclad demonstration as we find in Kant's deductions or Hegel's logic. Rather, Schopenhauer's argument has uncertainty built right in, and an uncertainty that cannot be eradicated. He often likens his methodology to decoding hieroglyphics (WWR1, p. 97), and this comparison is telling. One can provide a coherent key to the hieroglyphic symbols that turns out to

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be entirely wrong, and there would be no way to ever find out that this is the case. Thus again we see a new modesty about the possibilities of human knowing in Schopenhauer, a modesty that is part of a pessimistic worldview.[23]

To get back to Schopenhauer's account, if we extend the insight we have regarding our own intentional bodily movements to every other representation, Schopenhauer argues that the innermost nature [*Innerste*] or kernel of every particular representation and also the world as a whole is the will, and every representation is an objectification of the will:

> [I]t appears in every blindly acting force of nature, and also in the deliberate conduct of man, and the great difference between the two concerns only the degree of the manifestation, and not the inner nature [*Wesen*] of what is manifested (WWRI, p. 110).

While every representation is an expression of the will, Schopenhauer denies that every item in the world acts intentionally or has consciousness of its own movements. The will is a blind, unconscious force that is present in all of nature.[24] Only in its highest objectifications, animals, does this blind force become conscious of its own activity. Although the conscious purposive striving that the term "will" implies is not a fundamental feature of the will, conscious purposive striving is the manner in which we experience it and Schopenhauer chooses the term with this fact in mind (WWRI, pp. 111–112).

Schopenhauer uses the term "will" in two senses, which he himself acknowledges.[25] The will at its most fundamental is the blind force that underlies the phenomenal world. When he refers to individual wills, he is referring to intentional bodily movements, in keeping with the common meaning of the word. However, Schopenhauer departs from the traditional Kantian notion of the word in two important ways. Firstly, wills are not exclusively in the domain of the rational or human. Animals, too, have wills inasmuch as their bodily movements are guided by knowledge according to motives. Secondly, our wills are not mental but wholly physical: wills are bodily movements. In Schopenhauer's words, our bodies are the objectified will.

We see again in Schopenhauer's account of the will a diminishment of the status of humans, a dethroning that reverses the argument for the value of humanity in Kant. Regarding human action, the mechanisms are no different from those of animals, which will have important implications for Schopenhauer's ethics. Moreover, if the innermost nature of all beings is the will, human rationality becomes only an accidental and even minor feature of human beings, a point I will return to later. Moreover, not only does the will unite human activity and animal activity, but it also dissolves the fundamental distinctions between human activity and that of every other physical object, including inanimate objects:

> Spinoza (Epist. 62) says that if a stone projected through the air had consciousness, it would imagine it was flying of its own will. I add merely that the stone would be right. The impulse is for it what the motive is for me, and what in the case of the stone appears as cohesion, gravitation, rigidity in the assumed condition, is by its inner nature the same as what I recognize in myself as will, if knowledge were added in this case also (WWRI, p. 126).

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As this passage suggests, Schopenhauer's account of the will precludes the possibility of freedom in the Kantian sense. Humans act according to motives, and Schopenhauer (1997) describes motivation as "causality seen from within" (FFR, p. 214). Motives determine action with the same necessity as any causal mechanism.

Schopenhauer also describes the causal relation of acts of will in purely physiological terms. These two accounts are consistent insofar as Schopenhauer has a dual aspect view of the mental and physical: the mental and the physical are not two causally linked realms, but two aspects of the same nature, where one cannot be reduced to or explained by the other.[26] From the physical aspect, motives are brain processes that cause certain neural activities and these translate into bodily motion:

> When it comes to the real act of will, these motives, whose factory is the cerebrum, act through the medium of the cerebellum on the spinal cord and the nerves that issue from it; these nerves then act on the muscles, yet merely as stimuli of their irritability (WWRII, p. 249).

It is important to highlight the fact that in this account, the will is not a function of the brain: rather it is present as irritability in the muscular fibers of the *whole* body.

According to Schopenhauer, the will, as muscular irritability, is a continual striving for activity in general. Because this striving has no direction, it aims at all directions at once and thus produces no physical movement. However, when the nervous system provides the direction for this movement (i.e. motives act on the will), the movement is given direction and bodily movement occurs (WWRII, pp. 252–253). The nerves do not move the muscles, rather they provide the occasion for the muscles' movements.

The causal mechanism in acts of will is necessary and lawful, as are all causal relations in Schopenhauer's view. Acts of will follow from motives with the necessity that the motion of a billiard ball follows from its being struck. While human actions appear more spontaneous than other events, the unpredictability of human action is due to our inability to know comprehensively the character of an individual:

> [I]n man individuality stands out powerfully; everyone has a character of his own, and hence the same motive does not have the same influence on all, and a thousand minor circumstances, finding scope in one individual's wide sphere of knowledge but remaining unknown to others, modify its effect. For this reason, an action cannot be predetermined from the motive alone, since the other factor, namely an exact acquaintance with the individual character, and with the knowledge accompanying that character, is wanting (WWRI, p. 118).

Schopenhauer holds that each person has a unique character, and thus it is impossible to predict fully how a motive or set of motives will affect bodily motion. In addition, we usually do not know what a person's beliefs are concerning the motive, and these beliefs influence how she will respond to it. However, if we had a full account of a person's character as well as her beliefs, we could with scientific accuracy predict what bodily motion would result from a particular motive.[27] Schopenhauer, however, claims that such an account is impossible. The character never fully reveals itself (either to oneself or others) but is manifested piecemeal in particular actions and the internal nature of beliefs makes them inaccessible to others.

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Schopenhauer can make such a bold claim regarding the predictability of acts because, according to his account of cognition, causality is a form of our cognition and as such always occurs with necessity and lawfulness. When causality seems to happen randomly or when we are unable to predict the effects of causes, this is not due to an absence in regularity but to our failure to perceive regularity.

Schopenhauer distinguishes between causation that occurs mechanistically, through stimuli, and causality through motives. Each kind of causality occurs with necessity and lawfulness. The difference between these different classifications of causes regards the commensurability and proximity of cause and the effect, not their degree of lawfulness. In mechanical causation, the cause is contiguous and commensurate to the effect, both cause and effect are easily perceived, and therefore their causal lawfulness is clear. For instance, a billiard ball must be struck in order to move, and the force in which one ball hits will be equal to the force in which the other ball moves. In stimuli, causes are proximate: there is no separation between receiving the impression and being determined by it. At the same time, in stimuli cause and effect are not always commensurate: for instance, when a plant reaches up to the sun, the sun as cause makes no motion to produce the effect of the plant's movement. In motive causality, the cause is neither proximate nor commensurate: the memory of Helen can cause whole armies to run to battle, for instance. Consequently, the causal lawfulness is difficult, if not impossible, to perceive in motives.

In arguing that actions are determined by causal necessity, Schopenhauer provides a deterministic, naturalistic account of human action:

> The person who has come to see clearly … that man himself is only phenomenon of this will, but that such phenomenon has the principle of sufficient reason as its necessary form, knowable even from the subject, and appearing in this case as the law of motivation; to such a person a doubt as to the inevitability of the deed, when the motive is presented to a given character, seems like doubting that the three angles of a triangle are equal to two right angles (WWRI, p. 289).

The will as thing-in-itself, is not, however subordinate to the principle of sufficient reason, and being without any ground, is thereby free. Because all phenomena are subordinated to the principle of sufficient reason, and freedom is simply the absence of this principle, freedom can never enter the phenomena: nothing in the world can occur freely.[28] Thus as thing-in-itself, as will, we are free, yet our actions, which occur in time and space according to the principle of sufficient reason, occur according to strict necessity, insofar as our empirical character responds to motives.

Thus our deeds are both events linked with other events in a lawfully determined causal chain and acts that issue directly from our own characters. Our actions can embody both of these otherwise contradictory characterizations because they describe our deeds from two distinct notions of character, namely the empirical and intelligible. This distinction calls to mind Kant's distinction between the empirical and noumenal realm in the third antinomy: for both Schopenhauer and Kant, such a division allows them to preserve a notion of freedom even though action takes place in the arena of the natural world. However, there is a fundamental difference between Kant and Schopenhauer in this regard: for the former, this distinction allows for two kinds of

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causality, that which issues from physical laws and that which has its source in the agent. For Schopenhauer, however, there is only one kind of causality, that which proceeds from the principle of sufficient reason. Thus an agent cannot freely originate a causal series.

The distinction between the will as noumenon, or in Schopenhauer's words, our intelligible character, and the will as manifested in the phenomenal world, our empirical character, accounts for the fact that agents experience their own actions as free. We cannot have access to our intelligible character, as it exists outside our forms of knowing. Like all forces of nature, it is "original, inalterable, and inexplicable"(FW, p. 43). We only have access to our phenomenal or empirical characters, and we don't discover our characters by introspection, rather we learn of our actions by observing our actions in the world. Our empirical character, as an object of experience, is tied to the forms of experience; space, time, and causality. Our intelligible character is not determined by these forms and thus is free insofar as it is uncaused. Borrowing the term from Kant, Schopenhauer terms this freedom transcendental, as it is outside the realm of experience. Although we cannot ever have access to our intelligible characters, we do have some awareness that our actions issue from it and are thus very much our own:

> The consciousness of spontaneity and originality that undeniably accompanies all our deeds and by virtue of which they are our deeds, in spite of their dependence on the motives, is therefore not deceptive. Its content, however, extends beyond the deeds and originates higher up, since our being and essence themselves, from which all deeds necessarily proceed … are really included in it (FW, pp. 87–88).

In addition, the illusion that we have freedom in the robust Kantian sense of being able to choose otherwise is related to the illusion that our intellects are masters of our wills. We assume we choose our course of action based on our knowledge; however, in truth our intellects are merely instruments of the will. Our intellects may furnish our wills with motives, but the will determines the action in response to the motives given. To use Schopenhauer's metaphor of the wills relationship to the intellect, the will is a strong blind man carrying his sighted lame servant, the intellect, on his shoulders (WWR2, p. 209).[29] Hence, Schopenhauer avers, man cannot make himself: his character is original, unalterable, and ultimately inscrutable.

While aspects of this account of human agency evidence Schopenhauer's debt to Kant, the thrust of his characterization of the will reverses some of Kant's most important tenets regarding human nature, and in doing so provides a pessimistic view of humanity. Just as Schopenhauer's account of reason precludes it from being the source of human dignity, his account of human action undermines any possibility of human autonomy. For Schopenhauer, the only kind of freedom is the absence of law altogether. Thus the source of our dignity according to Kant, our ability to follow imperatives that originate in our own wills, does not exist for Schopenhauer. In addition, Schopenhauer's account allows him to embrace determinism and at the same time argue that we are still responsible for our actions insofar as our characters are fundamentally what we are. We hold ourselves responsible not because we could have acted differently given who we are but because we could have been someone different from who we are.

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Because Schopenhauer denies freedom of action, he argues that ethics can only be descriptive and never normative. The natural perspective of all living beings, he begins, is that of egoism. We experience only our own individual willing directly, and thus view ourselves as the bearer of the world (WWRI, p. 332). This egoism leads us to struggle against others for our own benefit. When we thwart the aims of another being in order to satisfy our own aims, we commit a wrong or injustice. Put simply, to do wrong is to deny another's willing in order to affirm our own. Conversely, the notion of right is the absence of wrong; it is to refrain from affirming one's individual will at the expense of another's individual will (WWRI, p. 335).

The awareness that explains the pangs of conscience, the awareness that individuation is merely phenomenal, forms the basis for Schopenhauer's ethics. Ethics is rooted in the felt knowledge of unity that is experienced as compassion. The ethical point of view, accordingly, expresses a deeper sort of knowledge than that found in the natural manner of viewing the world. Schopenhauer asserts that this knowledge cannot be taught or even communicated: "it is direct and intuitive knowledge that cannot be reasoned away or arrived at by reasoning: a knowledge that, just because it is not abstract … must dawn on each of us" (WWR1, p. 370).

The Ideas[30]

Schopenhauer first mentions the Ideas in Book Two of The World as Will and Representation as a continuation of his argument that the inner nature of the world is will. While will expresses itself *to us* in a variety of individuated beings, the will *in itself* is an undivided unity. This fact follows from Schopenhauer's understanding of the principle of sufficient reason: the principle holds only for the phenomenal realm, and this principle accounts for the principle of individuation. Thus, outside of phenomenon, there is no differentiation. It is the same force at work in our own willing, in the movements of animals, of plants and of inorganic bodies.

Yet, if the world is composed of undifferentiated willing, how can we explain the fact that this force manifests itself in such a vast variety of ways? Schopenhauer's reply is that the will is objectified in a hierarchy of beings. At its lowest grade, we see the will objectified in natural forces, and at its highest grade the will is objectified in the species of man. The phenomena of higher grades of the will are produced by conflicts occurring among different phenomena of the lower grades of the will, and in the phenomenon of the higher Idea, the lower grades are subsumed (WWR1, pp. 144–145). For instance, the laws of chemistry and gravity continue to operate in animals, although such lower grades cannot explain fully the movements of animals. Although Schopenhauer explains the grades of the will in terms of development, he insists that the gradations did not develop over time, for such an understanding would assume that time exists independently of our cognitive faculties. Thus in all natural beings we see the will expressing itself in its various objectifications. Schopenhauer identifies these objectifications with the Platonic Ideas for a number of reasons. They transcend space and time, they are foreign to plurality, they are related to individual beings as their prototypes, and they are ontologically prior to the individual beings that correspond to them.

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Although the laws of nature presuppose the Ideas, we cannot intuit the Ideas simply by observing the activities of nature, and this is due to the relation of the will to our representations. As mentioned earlier, the will is the thing in itself, but our representations of things – the usual medium for experiencing things and, indirectly, the will – are constituted by our form of cognition, the principle of sufficient reason. The principle of sufficient reason produces the world of representation as a nexus of spatio-temporal, causally related entities, and therefore Schopenhauer's metaphysical system seems to preclude our having access to the Ideas as they are in themselves, or in a way that transcends this spatio-temporal causally-related framework.

However, Schopenhauer introduces a kind of knowing that is free from the principle of sufficient reason. To have knowledge that is not conditioned by our forms of cognition would be an impossibility for Kant. Schopenhauer makes such knowledge possible by distinguishing the condition of knowing, namely, the principle of sufficient reason, from the condition for objectivity in general. To be an object for a subject is a condition of objects that is more basic than the principle of sufficient reason for Schopenhauer (WWR1, p. 187). Since the principle of sufficient reason allows us to experience objects as particulars existing in space and time with a causal relation to other things, to have an experience of an object solely insofar as it presents itself to a subject, apart from the principle of sufficient reason, is to experience an object that is neither spatio-temporal nor in a causal relation to other objects. Such objects are the Ideas, and the kind of cognition involved in perceiving them is aesthetic contemplation, for to perceive the Ideas is to experience of the beautiful.

Schopenhauer argues that the ability to transcend the everyday point of view and regard objects of nature aesthetically is not available to most human beings. Rather, the ability to regard nature aesthetically is the hallmark of the genius. The genius, claims Schopenhauer, is one who has been given by nature a superfluity of intellect over will (WWR2, p. 377). For Schopenhauer, the intellect is designed to serve the will. Since in living organisms, the will manifests itself as the drive for self-preservation, the intellect serves individual organisms by regulating their relations with the external world in order to secure their self-preservation. Because the intellect is designed to be entirely in service of the will, it slumbers, to use Schopenhauer's colorful metaphor, unless the will awakens it and sets it in motion (WWR2, p. 381). Therefore ordinary knowledge [*Erkenntniß*] always concerns the relations, laid down by the principle of sufficient reason, of objects in terms of the demands of the will (WWR1, p. 177).

Although the intellect exists only to serve the will, in certain humans the intellect accorded by nature is so disproportionately large that it far exceeds the amount needed for this service. In such individuals, the intellect can break free of the will and act independently. A man with such an intellect is a genius [and only men can have this ability, according to Schopenhauer], and this will-free activity is aesthetic contemplation or creation.[31] The genius is thus distinguished by his ability to engage in will-less contemplation of the Ideas for a sustained period of time, which allows him to repeat what he has apprehended by creating a work of art. In producing a work of art, the genius makes the beautiful accessible for the non-genius as well. Whereas non-geniuses cannot intuit the Ideas in nature, they can experience them in a work of art, for the artist replicates the object of nature in the artwork in such a manner that the viewer is capable of viewing it disinterestedly, that is, freed from her own willing, as an Idea (WWR1, p. 195).

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Schopenhauer categorizes and ranks the arts in virtue of the Ideas that they communicate. For instance, architecture is the lowest ranked art because it expresses the Idea of mass, the lowest expression of the will in nature. Tragedy is the highest ranked art because it expresses the willing of humans, the highest objectification of the will. All forms of art express a particular gradation of the will, i.e. an Idea, according to Schopenhauer, with one exception: music express the will itself, as manifested in all of the Ideas in nature. As a result, music has a special status for Schopenhauer among the arts: "Music is so very much more powerful and penetrating than is that of the other arts, for these others speak only in shadow, but music of the essence" (WWR1, p. 257).

Since aesthetic contemplation is knowledge freed from the strivings of the will, what characterizes this kind of knowledge for Schopenhauer is its *objectivity*.[32] Thus, strikingly, the aesthetic point of view is more objective than any other way of regarding an object, including the scientific point of view. As we have seen, all knowledge constituted by the principle of sufficient reason is in service of the will for Schopenhauer. Science is no different from any other body of knowledge in this respect. Science seems to be more objective than our quotidian viewpoints because it systematizes an aspect of our experience as a whole, and thus offers a uniquely comprehensive and organized account of experience. Yet science remains within the principle of sufficient reason insofar as science investigates the causal relations among physical entities, and consequently cannot lay claim to greater independence from our practical concerns than the knowledge we glean from our ordinary perceptions. It is only in the experience of the beautiful that the subject is freed from the will and thus capable of objectivity. Art does not transport the viewer to an imaginary or even ideal realm, rather it affords the opportunity to view an object without the distorting influence of his own will. In this regard Schopenhauer builds on a tradition, epitomized in Kant's aesthetics, for which the salient feature of the experience of beauty is the fact that it pleases us without our desiring it or, in other words, without satisfying any bodily, intellectual, or even moral needs on our part.

When Schopenhauer introduces his account of the Ideas, he brags that he is the first to identify Kant's and Plato's philosophies. He writes:

> [It] needs no further demonstration, that the inner meaning of both doctrines is wholly the same; that both declare the visible world to be a phenomenon which in itself is void and empty, and which has meaning and borrowed reality only through the thing that expresses itself in it (the thing-in-itself in one case, the Idea in the other) (WWR1, p. 172).

However, this identification subverts some of Kant's most important achievements in securing the status of our knowledge of the world. As Kant states in the introduction and prefaces of his work, his critical philosophy can secure the status of the sciences as well as the reality of the empirical world. He secures the sciences by demonstrating that synthetic *a priori* knowledge is grounded in the forms of human knowing. He secures the reality of the external world by pointing out that only transcendental idealism can lead to empirical realism: because the forms of our knowing are the conditions for the experience of objects, the objectivity of our perceptions are secured.

While Schopenhauer's account of the will as thing-in-itself does not alter Kant's position in regard to objective knowledge, his introduction of the Platonic Ideas does: all

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knowledge constituted by the principle of sufficient reason, including scientific knowledge, is in service of the will.[33] Only contemplation of the Ideas is free from the will's distortions. Indeed, Schopenhauer repeatedly refers to the phenomenal world as illusory[34]:

> But that a fundamentally false [*grundfalsche*] view thrusts itself automatically on man and must first be ingeniously removed, is to be explained by the fact that the intellect is not originally designed to enlighten us on the nature of things (WWR2, p. 176).[35]

Just as Schopenhauer's account of the will reverses the advances Kant was confident he had made regarding the rationality and dignity of humanity, his account of the Ideas subverts Kant's achievements in the field if epistemology: both our quotidian and scientific insights are tainted by subjectivity.[36]

In addition, Schopenhauer's accounts of artistic and scientific truth push against the prevailing positions of post-Kantian philosophy. Schopenhauer was not original in incorporating the Ideas into his metaphysical system: the Ideas can be found in Schelling's account of nature as well. However, his arguing against a continuity between scientific investigation and aesthetic contemplation made him unique among his contemporaries. I will argue that this lack of continuity is an aspect of his pessimism as well.

Most post-Kantian philosophers argued for a unity or continuity between science and art. Schelling and Goethe, for instance, held that the scientist and artist accessed that same truths. Goethe argued, under Schelling's influence, that the artist could repeat the Ideas found in nature because he himself is part of nature. As such, he has access to the creativity of nature, a creativity he can perceive as a scientist and repeat as an artist; the genius is able to see God in nature and nature in God, and this is precisely because God and nature are one.

For Schopenhauer, on the other hand, there is a break between science and art. Science operates in keeping with our practical commitments. The achievements of science always hold out the promise of translating into practical achievements. However, for Schopenhauer, the nexus of practical commitments always remains at the lowest level of cognition, a level constrained by the principle of sufficient reason. Therefore, we have to turn away from the world of purposes and turn to the Ideas to reach a deeper insight into the world.[37] However, this insight does not reveal deeper purposes in keeping with our own, as the pantheism of Schelling assumes, for the highest level of insight one can reach concerning the nature of the world reveals the futility of all human purposes. This fact gets to the heart of Schopenhauer's pessimism, which will be outlined below.

Before doing so, I would like to underscore the aspect of Schopenhauer's pessimism that is revealed in his account of the relationship between the aesthetic and scientific worldview, an aspect that again reveals a reversal from the position of Kant. Kant, like Schopenhauer, rejected a unity between the scientific and aesthetic worldview. At the same time, in his *Critique of Judgment*, Kant regarded the aesthetic standpoint as a bridge between our practical projects and the natural world: beautiful nature hinted and gave us hope that the world could accommodate our practical aims. For Schopenhauer, however, nature is the blind striving of the will. Not only is nature – including our own bodily natures – indifferent to our aims, but, as will be shown below, works against our ultimate aims.

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Schopenhauer was not unique in incorporating the Ideas into his system or in elevating the status of the beautiful. Schopenhauer's uniqueness lies in viewing the Ideas as radically at odds with the malevolent nature of the in- itself as will. The Ideas are timeless objects whose contemplation brings serenity, while the world in itself is an endless, purposeless flux, essentially and fundamentally characterized by suffering. Contemplation of the Ideas removes the subject from the will and therefore from the nexus of purposes which orient one's life. Since science is always related to this nexus of purposes, one must turn from the scientific perspective in order to contemplate the Ideas. The break between science and the Ideas represents the break between valuing our purposes while tied to the will versus recognizing the futility of our purposes when freed from the will. And in recognizing the break between the purposes of the will and the ultimate aim of man, Schopenhauer can appreciate a uniquely autonomous and elevated status for the experience of the aesthetic: the beautiful gives us not only access to a kind of truth more elevated than what we experience in our quotidian existence, but it also, at the same time, provides a respite from the suffering that characterizes all other human activity and, more poignantly, the nature of all existence.

The Will and Pessimism

For Schopenhauer, as we have seen, contemplation of the Ideas reveals a truer world than that to which we have access in our everyday concerns. A person capable of contemplation sees that the spatiotemporal world of causally connected entities is the manifestation of something more real. Yet the subject can reach an even higher insight than the perception of the Ideas. The highest truth available to human beings, argues Schopenhauer, is that the will, which characterizes all worldly existence, is evil.

Schopenhauer's argument for the evil of the will follows from the nature of the will as aimless striving. Because the will has no goal or purpose, he argues, the will's satisfaction is impossible. The will objectifies itself in a hierarchy of gradations from inorganic to organic life, and every grade of objectification of the will, from gravity to animal motion, is marked by a "restless never satisfied striving (WWR1, p. 309). In addition, every force of nature and every organic form of nature participates in a struggle to seize matter from other forces or organisms, since "each possesses only what it has wrested from another" (WWR1, p. 309). Thus worldly existence is marked by conflict, struggle and dissatisfaction:

> [T]his world is the battle-ground of tormented and agonized beings who continue to exist only by each devouring the other. Therefore, every beast of prey in it is the living grave of thousands of others, and its self-maintenance is a chain of torturing deaths (WWR2, p. 581).

The attainment of a goal or desire, Schopenhauer argues, results in satisfaction, whereas the frustration of such attainment results in suffering. Therefore, since worldly existence is marked by want or deficiency, and since satisfaction of this want is unsustainable, suffering can never be reduced or abolished (WWR1, p. 309). This fact is true in all of nature, but is more conspicuous in the life of man, since he lives his life with the greatest clarity and knowledge. Rather than serve as a relief from suffering,

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the intellect allows mankind to suffer most of all because his suffering is brought to the greatest clarity and consciousness. And the human with the greatest clarity, the genius, suffers most of all (WWR1, p. 405). From looking at the life of man, Schopenhauer concludes, one can recognize that "all life is suffering" (WWR1, p. 310). Since worldly existence is essentially evil, nonexistence is preferable to existence. The aim of anyone who reaches this highest level of insight is to renounce his life by renouncing willing altogether.[38]

Even if we are able to meet our needs and satisfy our desires with regularity, this leads not to contentment but to boredom, Schopenhauer argues: "all men, secure from wants or cares, are now a burden to themselves" (WWR1, p. 313). Nor can the pleasure of aesthetic contemplation serve as a remedy from the twin evils of boredom and suffering, for those few fortunate men who are capable of disinterested contemplation only experience aesthetic pleasure for short periods of time, "only as a fleeting dream" (WWR1, p. 314). Moreover, such men, because they have a preponderance of intellect compared to other men, are more sensitive and thus more prone to suffer than ordinary men, and "in this way also matters are made even" (WWR1, p. 314). Schopenhauer here is precluding both the aesthetic and the philosophical life as a remedy for the human condition insofar as philosophy for him is an aesthetic activity.

Schopenhauer regards pleasure as only a negative state, whereas pain is the positive state, and this follows from the nature of the will: the will is an endless, aimless striving or desire. Since pleasure is the result of a desire being satisfied, desire is the precondition of pleasure. At the same time, desire is experienced as a lack of the desired thing and therefore as a pain. Consequently, the precondition of pleasure is pain, and pleasure is properly understood as the ending of a pain: "[P]leasure can be known only by indirectly by remembering the preceding suffering and privation that ceased on their entry" (WWR1, p. 319). We feel pain, not painlessness, he argues, we feel frustration but not contentment. Whereas it is possible for one to live his whole life in profound pain, there has never been a case of a person who lived his whole life in ecstatic pleasure. Pleasure can only be a fleeting phenomenon, and thus happiness can only be a temporary reprieve from lasting misery. Moreover, the satisfaction of one's desires leads not to happiness but to boredom: "[L]ife swings like a pendulum to and fro between pain and boredom, and these two are in fact its ultimate constituents" (WWR1, p. 312).

Seen in this light, Schopenhauer argues, the human condition is both tragic and comic. It contains all the woes of tragedy, but because all possible aims in life are false, our suffering has none of the nobility of a tragic character: "the doings and worries of the day, the wrestles mockeries of the moment … are all brought about by chance that is always bent on some mischievous trick" (WWR1, p. 419). Schopenhauer augments his *a priori* argument for the misery of existence with *a posteriori* evidence:

> If we were to conduct the most hardened and callous optimist through hospitals, infirmaries, operating theatres, through prisons, torture-chambers, and slave hovels, over battlefields and to places of execution, if we were to open to him all the dark abodes of misery, where it shuns the gaze of cold curiosity, and finally were to allow him to glance into the dungeon of Ugolino where prisoners starved to death, he too would certainly see in the end what kind of a world is this *meilleur des mondes possibles* (WWR1, p. 325).

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Although these examples are extreme, they only highlight what is true for any individual: "every life history is a history of suffering"(WWR1, 325). Because humans orient their lives toward happiness, and because happiness is an illusion, the life of every person is governed by a falsehood: "life presents itself as a continuous deception, in small matters as well as in great. If it has promised, it does not keep its word" (WWR2, 573). Given the state of existence, Schopenhauer argues that optimism is not only a stupid doctrine, but evil as well, for it makes a "bitter mockery of the unspeakable suffering of mankind" (WWr1, p. 326, cf., WWR2, p. 584).

To sum up, Schopenhauer argues for the negative nature of existence by first employing his characterization of the will as ceaseless striving in order to argue that conflict and dissatisfaction are essential conditions of existence. Schopenhauer moves from the condition of existence to the condition of man, for in the phenomenon of man the condition of existence reaches its greatest clarity insofar as man's suffering is illumined by the greatest degree of knowledge. Even with the use of reason, man can in no way alter the degree of misery he experiences, and moreover, his reason only magnifies the degree to which he experiences his life as miserable. Thus all the ordinary pursuits of mankind are not only fruitless but also illusory insofar as they are oriented toward satisfying an insatiable, blind will. Since pleasure is always negative, no lasting happiness is achievable.

Salvation

Schopenhauer has characterized virtue by an intuitive knowledge that can recognize the unity of all sufferers. Yet this knowledge that sees beyond the principle of individuation can exceed even the ethical point of view found in compassion. Schopenhauer describes this higher point of view as follows:

> If that veil of Maya, the *principium individuationis*, is lifted from the eyes of a man to such an extent that he no longer makes the egoistical distinction between himself and the person of others, but takes as much interest in the sufferings of other individuals as in his own, and thus is not only benevolent and charitable in the highest degree, but even ready to sacrifice his own individuality whenever several others can be saved thereby, then it follows automatically that such a man, recognizing in all beings his true and innermost self, must also regard the endless sufferings of all that lives as his own, and thus take upon himself the pain of the whole world (WW1, pp. 378–379).

Such a person is distinguished from the altruistic person by his ability to recognize not simply the suffering of others but the whole expanse of suffering. A person who has taken on the suffering of the world is able to see that the world is essentially suffering. Again, this knowledge is neither abstract nor communicable, but "intuitive and immediate knowledge"(WWR1, p. 394). Such a person experiences the suffering of the world as if it were his own.

Armed with this greater insight, such a person no longer is motivated to allay the suffering of himself or of others, for he can see the futility of such a project in a world whose very existence is constituted by suffering. Rather, he turns away from life altogether, for "how could he, with such knowledge of the world, affirm this very life through constant acts of the will, and precisely in this way bind himself more and more

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firmly to it, press himself to it more closely?"(WWR1, p. 379). Such a person, in seeing the suffering of the whole, can recognize that suffering is the fundamental feature of life and that attempting to ameliorate suffering is futile.

Thus, the person who has reached this higher state of knowledge renounces willing altogether. He turns away from life by renouncing every desire and lives the life of an ascetic. Whereas the virtuous person recognizes the unity between his own inner nature and that of others, the ascetic renounces his inner nature, the will, by starving his desires. Such a person still experiences his will insofar as his body does not cease to desire, but he suppresses it as much as possible. In some cases, this knowledge of the will that causes the ascetic to renounce it can bring about the complete turning away from the will. This turning from the will, states Schopenhauer, is resignation or salvation. It is important to note that salvation is not simply the result of knowledge, although the highest point of knowledge is a necessary condition for it. Rather, it is the result of the highest point of knowledge reacting on the will.[39] Since this event lies outside the realm of motives, and is an "event-in-itself," or metaphorically, an effect of grace, there is no explanation regarding why it happens to an individual. This leaves open the possibility of a person having the knowledge and being unable to renounce the will. Thus knowing that pessimism is true does not necessarily entail renouncing the will.

Notice that at this stage, the standpoint of resignation, the veil of Maya is lifted even further. Recall that Schopenhauer, at the beginning of his argument for pessimism, argued that we live our lives according to a futile goal: we continuously struggle to maintain our existence, and this struggle is entirely futile, for the inevitable result of this struggle will be death. Now he has revealed that the continuation of existence is not only false because it is futile, it is false because its frustration would be preferable. In struggling to maintain our continued existence, we are affirming the will to life. We do not choose this purpose, rather the will gives it to us, and through our intellects we appropriate it as our own. In truth, however, we would be better off to dispense with this purpose altogether, for nonexistence is preferable to existence: "The fear of death which holds us firmly to life in spite of all its miseries, is really illusory; but just as illusory is the impulse that has enticed us into it" (WWR2, p. 569).

The person who experiences salvation has reached the highest level of insight possible, for such a person realizes fully that nonexistence is preferable to existence: "nothing else can be the aim of our existence except the knowledge that it is better for us not to exist. This, however, is the most important of all truths" (WWR2, p. 602). Schopenhauer also speaks of this standpoint, the standpoint of salvation, as beyond knowledge, for it no longer has the form of subject and object (WWR1, p. 410). The highest point of knowledge, the point where the world is most truly revealed, is also the point where Schopenhauer's pessimism reaches its highest point of expression, for this knowledge is nothing other than the negative nature of existence.

Conclusion

Schopenhauer boasts that he is able to provide a philosophical system that unites metaphysics, aesthetics, and ethics in his doctrine of the will. As we have seen, the doctrine of the will entails the doctrine of pessimism, and the pessimistic consequences of his

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metaphysics extend to every facet of his thought. As the impact of Schopenhauer's pessimism on subsequent thinkers becomes more evident, his pessimism merits a reconsideration. As Dienstag points out, the failure of more optimistic views of humanity's possibilities makes such an examination relevant in ways that go beyond Schopenhauer scholarship.

Notes

1 Many thanks to J.A. Shand and Maria Granik for their helpful edits and comments on earlier drafts of this chapter.

2 "[Schopenhauer], one of the nineteenth century's most original and penetrating thinkers seldom receives the attention or acknowledgement that he deserves" (Michael Fox 1980, p. xv).

3 "Schopenhauer's place at or beyond the margins of sight is probably over-determined by his metaphysical conservatism and commitment to timeless truths, his anti-Hegelianism, his neglect by formative figures such as Heidegger or Levinas, and the apparent readiness of today's readers to take at face value (wrongly, I would argue) the rude and dismissive remarks made about him by the later Nietzsche" (Janaway, pp. 2–3 1999). While the typical characterization of Nietzsche's attitude toward Schopenhauer philosophy recognize a shift from admiring Schopenhauaer in Nietzsche's early writings to one of disapprobation in his later thought, the relationship of Nietzsche's thought to that of Schopenhauer is far more complex. Janaway's edited collection *Willing and Nothingness: Schopenhauer as Nietzsche's Educator* investigates Nietzsche's debts to Schopenhauer throughout Nietzsche's works.

4 Lukacs (1979, pp. 192–243).

5 See the essays in "Part V: Schopenhauer's Context and Legacy" in Vanderbeele (2016) for an overview of Schopenhauer's influence.

6 Throughout this chapter, I will refer to Schopenhauer's works by means of the common abbreviations employed by Schopenhauer scholars writing in English. Refer to the bracketed letters in the bibliography to identify the Schopenhauer text to which the abbreviation refers.

7 Bryan Magee (1997) offers the most sustained argument for the position that Schopnhauer's pessimism is a reflection of his temperament. Magee's argument has been ably refuted by a number of scholars, most notably Christopher Janaway. See Magee, pp. 323–324.

8 John Atwell (1990) has pointed out that the term pessimism entered philosophical vocabularies only at the beginning of the nineteenth century. This fact may contribute to the confusion of how to define Schopenhauer's pessimism. See Atwell, p. 146.

9 For an overview of the various interpretations of Schopenhauer's pessimism, see Atwell (1990, pp. 150–179). Excluded from these possible interpretations of Schopenhauer's pessimism is the commonplace understanding of pessimism, a "glass half full" position. Such an account holds that pessimism is a human attitude that is more negative than is typical toward states of affairs. With this understanding, pessimism would collapse into realism if things were, in fact, as bad as they appear to the pessimist. Such a position would regard, then the relationship between one's beliefs about the world and the actual state of affairs in the world.

10 Migotti (1995) adds a separate defense of pessimism, one not previously recognized: since life has no unconditioned realizable goal, life is not choice-worthy. See Migotti, p. 652.

11 Julian Young summarizes the tenets of Schopenhauer's pessimism. His account is consistent with that of Dienstag in holding that the denigration of the intellect and the recognition of the burden of time are essential features. See Young, p. 136ff.

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12 I am grateful to J.A. Shand for pointing out the complexities involved in identifying Schopenhauer's philosophy as pessimistic.

13 The two volumes of Schopenhauer's masterwork, The World as Will and Representation, will be referred to as WWR1 and WWR2 throughout this chapter.

14 "Its proofs have such a complete power of conviction that I number its proposition among the incontestable truths" (WWR1, p. 437). In the Preface to *The World as Will and Representation*, Schopenhauer demands that his readers have a thoroughgoing mastery of Kant and with his own dissertation, *The Fourfold Root of Sufficient Reason*, before reading his book.

15 For a detailed analysis of Schopenhauer's relationship to transcendental idealism, see McDermid (2012).

16 "Kant's' greatest merit is the distinction of the phenomenon and the thing-in-itself, based on the proof that between us and things always stands the intellect, and that on this account they cannot be known according to what they may be in themselves" (WW1, pp. 417–418). Schopenhauer was more critical of the deductions in the Transcendental Analytic, especially in the second edition of *The Critique of Pure Reason* in which he sees Kant as retreating from his idealism. For Schopenhauer, causality is a form of perception and therefore, contra-Kant, is non-conceptual.

17 Schopenhauer gives credit to G.E. Schulz for identifying this incoherence in Kant's system. See WWR1, p. 436.

18 Julian Young (2005) challenges Schopenhauer's account of reason and perception, arguing that Schopenhauer has to help himself to a more Kantian account of conceptualization in order for the account to be coherent. See Young, pp. 44–46.

19 "[R]eflection is necessarily the copy [Nachbildung] or repetition of the originally presented world of perception." WWR1, p. 40.

20 "It will be of special interest for us to obtain information about its real significance … by virtue of which these pictures and images do not march past us strange and meaningless, as they would otherwise inevitably do, but speak to us directly, are understood, and acquire an interest that engrosses our whole nature." WWR1, p. 95.

21 WWR1, p. 97.

22 "The double knowledge which we have of the nature and action of our own body … is given in tow completely different ways … Accordingly we shall use it further as a key to the inner being of every phenomena in nature." WWR1. There is some disagreement in Schopenhauer scholarship regarding how the double knowledge of one's own bodily movements serves as a key to understanding the significance of all other representations. Traditionally, the argument was read as one of analogy. More recently, John Atwell (1995) has argued that claiming to fail to extend our dual knowledge of our own bodies to other bodies would lead to unacceptable ontological and epistemological consequences. Christopher Janaway (1999b) has supported Atwell's reading based on the epistemological and existential concerns that were informing post-Kantian German philosophy. See Atwell, p. 84ff, Janaway, pp. 266–267.

23 See Gardner (2012), who argues that central to Schopenhauer's method is a denial of the kind of rational grounding of cognition that characterizes German Idealism.

24 Young (2005) takes issue with the blindness of the will for two reasons: (i) if the will bears moral responsibility, then it cannot be blind and (ii) the will seems to act by design. See Young, pp. 82–85.

25 Schopenhauer at times marks the distinction between these two aspects of the will by terming the will in nature *Wille*, and the will as free choice as *Willkur*. See for instance Schopenhauer (2009), *On the Will in Nature*, p. 56.

26 "The intellect and matter are correlatives, the one exists only for the other; both stand and fall together, and the one is only the other's reflex. They are in fact really one and the same thing, considered from two opposite points of view." WWR2.

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27 "To use Kant's words, if character and motive were exactly known, the act of will could be calculated with the same certainty as an eclipse of the moon" Schopenhauer (2009, p. 84).

28 Schopenhauer posits that there is an exception to this account in the experience of resignation. I will discuss resignation below.

29 I would add that, when the servant sees which path the master chooses to carry him on, he convinces himself that he is the master and has chosen the path himself.

30 Schopenhauer's account of the sublime will not be included in this chapter due to limitations of space. Recent Schopenhauer scholars have argued for the centrality of the sublime of his doctrine. See for instance Vandenabeele (2015) and Vasalou (2013).

31 Although persons with normal brain sizes cannot achieve the sustained contemplation of the genius, they can be given over to will-free contemplation, provided that the artist has already presented the Ideas shorn from their relations.

32 WWR1, p. 180. "That this objectivity should be pure, complete, adequate objectivity of the will, supposes the object as Idea, free from the forms of the principle of sufficient reason, and the subject as pure subject of knowledge, free from individuality and servitude to the will."

33 At times, Schopenhauer suggests that scientific knowledge is sounder than abstract knowledge based on individual perceptions because it is more objective. However, this objectivity is not to be equated with the objectivity one enjoys in contemplation: rather, it is more objective insofar as it regards an aspect of subjectivity we all have in common, namely the forms of our cognition. See WWR2, p. 89.

34 Christopher Janaway (1999a, b) points out the problems with Schopenhauer's account of the illusory nature of experience, and he proposes a "two-tiered" view of reality to make Schopnhauer's account more consistent. See Janaway, p. 169ff.

35 Cf., "We agree with Plato that objects of space and time have only a dreamlike existence." WWR1, p. 181.

36 While Schopenhauer argues that scientific knowledge is tainted by subjectivity, he held scientific knowledge in high esteem. He held that legitimate philosophical interpretation of the world must be consistent with the best findings of science, and he rigorously kept abreast of scientific findings and augmented his philosophical demonstrations with evidence from the sciences. See for example WWR2, pp. 128, 172–184. For a sustained treatment of Schopenhauer's view of the sciences, see Mandelbaum (1980, pp. 50–67).

37 Thus Schopenhauer argues that the standpoint of philosophy is aesthetic: The genuine method of considering the world philosophically, in other words, the consideration which acquaints us with the inner nature of the world and thus takes us beyond the phenomenon, is precisely the method that does not ask about the whence, the whither, the why of the world, but always and everywhere the what alone. Thus it is the method that considers things not according to any relation, not as becoming and passing away, in short not according to one of the four forms of the principle of sufficient reason. On the contrary, it is precisely what is left over after we eliminate this method of consideration that follow the principle of sufficient reason; thus, it is … the Ideas of the world, that forms the method of our philosophy. From such knowledge we get philosophy as well as art."

38 Schopenhauer's positions regarding the nature of existence as suffering and the road to salvation as renunciation echoes in Buddhism. Schopenhauer was familiar with Hinduism and Buddhism from his reading of the Asiatic Journals, and he praised it as superior to all religions in articulating the truth. However, he denied that Buddhism played a role in the development of his philosophy: he asserted that the outlines of his philosophy were fully developed before he became familiar with Buddhist thought. Regardless of whether this assertion can be taken at face value, he was instrumental in introducing Eastern thought to German readers. For an overview of Schopenhauer's relationship to Eastern philosophy, including an examination of its possible influence on his thought, see "Buddhism" in

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Cartwright (2005), Nichols (1999), Cooper (2012). Nichols's article includes an appendix which notes all of the Eastern sources Schopenhauer refers to as well as where in his writings the references can be found. For an overview of philosophical themes in Buddhist texts, see Edelgass and Garfield (2009).

39 "If this kind of knowledge reacts on the will, it can bring about the will's self-elimination, in other words, resignation" WWR1, p. 152.

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12

American Pragmatism

Peirce, James

DOUGLAS MCDERMID

Deux excès: exclure la raison, n'admettre que la raison.

—Pascal[1]

I

This chapter examines the work of pragmatism's two earliest exponents, Charles Sanders Peirce (1839–1914) and William James (1842–1910). Particular attention is paid to the latter's version of pragmatism: a liberal and irenic *Lebensphilosophie* which judged thoughts by their practical consequences, encouraged individuals to trust the deepest demands of their natures, emphasized the creative and purposive character of all human thought, and stressed the moral and intellectual necessity of tolerating rival points of view. Two defining features of James's outlook are emphasized and explored: his post-positivist philosophy of science, and his ground-breaking work in the philosophy of religion.

The de facto founder of American pragmatism was Charles Sanders Peirce, a cantankerous polymath who never secured a permanent academic position. Though born into the academic establishment – his father, Benjamin Peirce (1809–1880), was a highly regarded professor of mathematics at Harvard, where Charles took his undergraduate degree – Peirce *fils* spent his entire professional life working outside of universities, with the exception of a brief stint (1879–1884) spent on the faculty at Johns Hopkins.[2] Why did this supremely gifted and daring thinker fail to establish himself professionally? His eccentric and grandiose manner, his undisguised contempt for lesser minds, and his unconventional private life – separated from his first wife, the feminist activist Harriet Melusina Fay (1836–1923), he lived with another woman – all worked against him, no

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doubt, as did the inflexible opposition of professorial power-brokers such as Simon Newcomb (1835–1909), the eminent mathematician at Johns Hopkins, and Charles William Eliot (1834–1926), Harvard's redoubtable and long-serving president.

Because the middle-aged Peirce had no advanced pupils to supervise and no departmental colleagues to spar with, his philosophical system was developed more through conversations with the shades of the mighty dead – Aristotle and Kant, Scotus and Reid, Descartes and Schelling, Plato and Hegel – than through exchanges with flesh and blood contemporaries. Unfortunately, this isolation or distance from the academic mainstream reinforced his unfortunate tendency to pen technical papers which were long on recondite allusions and sarcastic asides, but short on pedestrian stage-setting and contextualization. As a result, readers who are new to the study of Peirce may initially feel frustrated and bewildered; for it may seem to them as if they have made the acquaintance of an intellectual giant who refuses to popularize and who enjoys making things difficult for the uninitiated. This reaction, it should be noted, would not have dismayed Peirce in the least: "My book is meant for people who *want to find out*, and people who want philosophy ladled out to them can go elsewhere. There are philosophical soup shops at every corner, thank God!" (CP 1.11).

II

A working scientist and brilliant logician as well as a first-rate philosopher of science, Peirce sought in his early writings to shed light on the practice of inquiry – that goal-directed process which begins with the disagreeable stimulus of doubt and ends with the gratifying fixation of belief:

> The irritation of doubt causes a struggle to attain a state of belief. I shall term this struggle *Inquiry*, though it must be admitted that this is sometimes not a very apt designation.
>
> The irritation of doubt is the only immediate motive for the struggle to attain belief. It is certainly best for us that our beliefs should be such as may truly guide our actions so as to satisfy our desires; and this reflection will make us reject every belief which does not seem to have been so formed as to insure this result. But it will do so only by creating a doubt in the place of that belief. With the doubt, therefore, the struggle begins, and with the cessation of doubt it ends. Hence the sole object of inquiry is the settlement of opinion (CP 5.374–5.375; cf. CP 5.394).

Understanding inquiry's basic structure, we see, requires us to distinguish doubt from belief. According to Peirce, the difference between the two is easily grasped: doubt is a more or less anxious or suspenseful state which compromises action, whereas belief is an agreeable state which guides and inspires it:

> The feeling of believing is a more or less sure indication of there being established in our nature some habit which will determine our actions. Doubt never has such an effect … Doubt is an uneasy and dissatisfied state from which we struggle to free ourselves and pass into the state of belief; while the latter is a calm and satisfactory state which we do not wish to avoid, or to change to a belief in anything else. On the contrary, we cling tenaciously, not merely to believing, but to believing just what we do believe (CP 5.371–5.372; cf. CP 5.397).

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Now that we have dealt with inquiry's genesis in doubt, let us turn our attention to Peirce's account of inquiry's end. If our sole aim or object is the fixation of belief or the settlement of opinion, what method should we employ? Peirce's reply to this question is unambiguous: instead of investing anything human or inconstant with supreme authority, inquirers should let their beliefs be determined "by some external permanency – by something upon which our thinking has no effect ... something which affects, or might affect, every man" (CP 5.384). This resolution to let Nature answer our questions in propria persona defines what Peirce calls "the method of science" (CP 5.384), which postulates that "there are Real things, whose characters are entirely independent of our opinions about them; those Reals affect our senses according to regular laws, and, though our sensations of them are as different as are our relations to the objects, yet, by taking advantage of the laws of perception, we can ascertain by reasoning how things truly are; and any man, if he have sufficient experience and he reason enough about it, will be led to the one True conclusion" (CP 5.384). Science, we are thus given to understand, is a self-correcting practice which rests on the hypothesis that there is an independent domain of objects to which all members of the community of inquirers have access, and about which a stable consensus will emerge in the long run.

The products of our inquiries, we have already been told, are opinions or beliefs. However, there is more to this prosaic assertion than meets the eye. Since beliefs are really habits or rules for action (CP 5.12, 5.371, 5.377, 5.397, 5.398), and since inquiry is another name for thought (CP 5.400), Peirce thinks we are entitled to conclude that "the whole function of thought is to produce habits of action" (CP 5.400). Hence the meaning of thought is essentially practical and forward-looking:

> To develop [a thought's] meaning, we have, therefore, simply to determine what habits it produces, for what a thing means is simply what habits it involves. Now, the identity of a habit depends on how it might lead us to act, not merely under such conditions as are likely to arise, but under such as might possibly occur, no matter how improbable they may be. What the habit is depends on when and how it causes us to act ... Thus we come down to what is tangible and conceivably practical as the root of every real distinction of thought, no matter how subtle it may be; and *there is no distinction of meaning so fine as to consist in anything but a possible difference of practice* (CP 5.400; emphasis mine).

This insight lies at the heart of Peirce's so-called "pragmatic maxim": "Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object" (CP 5.402; cf. CP 5.2–5.3, 5.11–5.13, 5.18, 5.438, 6.481–6.482, 6.490, 8.208). Applying this maxim to our conception of objective truth, we discover that true opinions are practically identical with permanently fixed opinions or beliefs which cannot be improved upon by further inquiry or additional study. That is to say, Peirce thinks that a true opinion is one which would eventually be accepted by all competent investigators who consistently follow the method of science: "The opinion which is fated to be ultimately agreed to by all who investigate, is what we mean by truth, and the object represented by this opinion is the real" (CP 5.407; cf. CP 5.311, 5.416, 5.495, 5.553, 5.564, 5.565). But if this is the practical meaning of truth, Peirce

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reasons, our goal as inquirers is to arrive at beliefs which will never need to be revised or repudiated, recanted or renounced:

> You only puzzle yourself by talking of this metaphysical "truth" and metaphysical "falsity," that you know nothing about. All you have any dealings with are your doubts and beliefs, with the course of life that forces new beliefs upon you and gives you power to doubt old beliefs … [I]f by truth and falsity you mean something not definable in terms of doubt and belief in any way, then you are talking of entities of whose existence you can know nothing, and which Ockham's Razor would clean shave off. Your problems would be greatly simplified, if, instead of saying that you want to know the "Truth," you were simply to say that you want to attain a state of belief unassailable by doubt (CP 5.416).

Can we ever be sure that we have attained a state of belief unassailable by doubt? No, because we cannot know what the future of inquiry may hold. Recognition of the ever-present possibility that we may be mistaken, Peirce concludes, is essential to the ruthlessly self-critical spirit of science: "The scientific spirit requires a man to be at all times ready dump his whole cartload of beliefs, the moment experience is against them. The desire to learn forbids him from being perfectly cocksure he knows already" (CP 1.55; cf. CP 1.9, 1.137). Notice what such "contrite fallibilism" (CP 1.14) entails: if the conclusions of our inquiries must always be seen as provisional and as potentially open to revision, scientists sin against the spirit of their discipline whenever they become cocksure or complacent about their findings. Yet sins of this sort have been quite common, as Peirce points out: "That we can be sure of nothing is an ancient truth. The Academy taught it. Yet science has been infested with overconfident assertion, especially on the part of the third-rate and fourth-rate men, who have been more concerned with teaching than with learning, at all times" (CP 1.137). Dogmatism blocks the road of inquiry, Peirce asserts, because it breaks what he calls "the first rule of reason": "In order to learn you must desire to learn, and in so desiring not be satisfied with what you already incline to think" (CP 1.135; cf. CP 1.55).

Peirce's early writings, it is fair to say, articulate six ideas which are integral to his pragmatism: (i) That inquiry begins with doubt and ends with the fixation of belief; (ii) That inquirers should adopt the method of science, which assumes the existence of Reals; (iii) That our beliefs are habits or rules for action; (iv) That the meaning or import of our intellectual conceptions is inseparable from their practical consequences; (v) That a true opinion is one which would be accepted at the hypothetical end of inquiry; (vi) That no theory or thought concerning any matter of fact is absolutely certain. A contrite fallibilist who passionately desired to learn, Peirce revisited and refined some of these theses in his later work (particularly after 1900). However, this chapter is not the place to expatiate on the evolution of Peirce's philosophy – a philosophy, it must be said, of which pragmatism was only a part.

III

Three decades after leaving Johns Hopkins University under a cloud, Peirce died debt-ridden and disappointed at Arisbe, his rickety estate in northeastern Pennsylvania. With the permission of his resilient widow Juliette (d. 1934), his manuscripts were

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carted off to Harvard University, where Charles Hartshorne (1897–2000) and Paul Weiss (1901–2002) were tasked with editing them. The fruit of their Herculean labors, a multi-volume production published by Harvard University Press as *The Collected Papers of C.S. Peirce* (1931–1958), did much to make its author's genius evident to readers who possessed both the patience to pore over its multifarious contents and the intelligence to parse its neologism-peppered pronouncements. Before long, Peirce's name became fairly well-known among forward-looking philosophers and semioticians, and his stock rose steadily in Europe and the Americas. However, his posthumous fame should not obscure the fact that the best-known version of pragmatism prior to the First World War was not Peirce's.[3]

It was the genial and winning William James, Peirce's steadfast friend from Harvard, who made pragmatism popular – in more than one sense – through his many published lectures and talks. Full of Emersonian uplift and edification, James's lay sermons spoke directly to men and women haunted by seemingly unassuageable doubts: about the purpose and significance of their lives, about the fate of religion in a science-worshipping age, about the possibility of free agency in a law-governed cosmos, about the nature and practical meaning of truth and reality. James himself had fallen prey to such tormenting perplexities in the 1860s after his graduation from Harvard Medical School, and the result was a near-total nervous collapse, a lonely agony of soul and damning paralysis of heart which would now almost certainly be classified as clinical depression. He recovered from this sickness of soul largely through his voluntary and provisional acceptance of a new way of thinking – one which stressed the creative uses of uncertainty and ambiguity instead of looking for an immutable foundation of rock-hard dogmas on which to ground one's worldview or one's life.[4] The following diary entry, dated 30 April 1870, thus represents a turning-point both in James's personal history and in the history of Anglo-American philosophy:

> I think that yesterday was a crisis in my life. I finished the first part of Renouvier's second "Essais" and see no reason why his definition of Free Will - "the sustaining of a thought *because I choose to* when I might have other thoughts" need be the definition of an illusion. At any rate, I will assume for the present - until next year - that it is no illusion. My first act of free will shall be to believe in free will. For the remainder of the year, I will abstain from the mere speculation and contemplative *Grüblei* in which my nature takes most delight, and voluntarily cultivate the feeling of moral freedom, by reading books favorable to it, as well as by acting ... I will posit life (the real, the good) in the self-governing resistance of the ego to the world. Life shall be built in doing and suffering and creating (McDermott 1967, pp. 7–8).

This open-ended and hopeful outlook, together with several doctrines of Peircean provenance, formed the nucleus of Jamesian pragmatism: a liberal and irenic *Lebensphilosophie* which judged thoughts by their practical consequences, encouraged individuals to trust the deepest demands of their natures, emphasized the creative and purposive character of all human thought, and stressed the moral and intellectual necessity of tolerating rival points of view. If we want to understand this romantic revision of empiricism, we need to become acquainted with two of its defining features: James's post-positivist philosophy of science (Sections IV–VI), and his ground-breaking work in the philosophy of religion (Sections VII–X).

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IV

As is well-known, empiricists from John Locke to John Stuart Mill stressed that the foundations of human knowledge must be sought in the extra-conceptual domain of experience. According to this way of looking at knowledge and science, our beliefs about reality ultimately derive their justification or warrant from the direct testimony of our senses – seeings, smellings, touchings, tastings, listenings, or some combination thereof. I believe that there is a steaming cup of coffee on the dining room table. Why? Simple: because I see it and smell it. I also believe there is a nightingale in the garden beneath my window. Why? Because I can hear its song. In such cases, the dependence of our judgments upon the deliverances of perception is perfectly plain, and virtually no-one doubts that our evidence is sufficient. Such neutral experiential givens, classical empiricists claim, are prior to theory, making the latter answerable to the former – not vice versa.

James is convinced that this traditional empiricist picture of knowledge, though not completely false, contains more than its share of half-truths and howlers. As he sees it, our knowledge does not rest upon an empirical given; that is, upon a mode of sensory apprehension uncontaminated by theory and unsullied by concepts. Indeed, James thinks that unmediated experience cannot have either the first or the last word in inquiry; and he denies that human knowledge has any permanent foundation. Why does he take this line?

Argument 1: Because the given is a philosophical myth which empiricists need to discard once and for all. Since perceptual experience always involves interpretation and classification, it cannot possibly give us epistemic access to an unconceptualized reality: "When we talk of a reality 'independent' of human thinking, then, it seems a thing very hard to find … We may glimpse it, but we never grasp it; what we grasp is always some substitute for it which previous human thinking has peptonized and cooked for our consumption" (James 1907, p. 112; cf. James 1890, I, p. 488). But if perception cannot give us direct access to physical reality, nothing can. The conclusion we must draw is that Immanuel Kant was essentially right: "intuitions without concepts are blind" (Kant 1781, pp. A51/B76). James expresses this idea more colorfully than Kant, observing that raw experience would be "one great blooming, buzzing confusion" (1890, I, p. 488).

Argument 2: Because observation, far from occurring in an intellectual vacuum, is conditioned by interests and guided by theory. To observe is to select, to discriminate, to look *for* something; and your decision to look for a given item – the blue and white book on the self, the figure in the carpet, your friend's face at the airport – is inescapably shaped by your background commitments and your purposes: "Millions of items of the outward order are present to my senses which never properly enter into my experience. Why? Because they have no *interest* for me. *My experience is what I agree to attend to*. Only those items which I *notice* shape my mind – without selective interest, experience is an utter chaos" (James 1890, I, pp. 402–403; cf. James 1897, pp. 117–120). But if observation leans thus on interests and presuppositions, perceptual judgments depend on prior judgments instead of grounding our conceptual scheme in the manner of foundational beliefs.

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Argument 3: Because the deliverances of experience cannot be accepted and assimilated unless they can be made to cohere with our standing body of beliefs and our preconceptions: "As a matter of fact we can hardly take in an impression at all, in the absence of a preconception of what impressions there may possibly be" (James 1907, p. 112). Observations will typically be ignored or explained away, we are told, if they defy expectations or clash with entrenched commitments: "If a novel experience ... contradict too emphatically our pre-existent system of beliefs, in 99 cases out of a hundred it is treated as false" (James 1909, p. 134). And this epistemically conservative strategy, James assures his audience, is the simplest and most satisfactory way of dealing with inputs which contradict the worldview on which our very sense of what is true depends: "An *outrée* explanation, violating all our preconceptions, would never pass for a true account of a novelty. We should scratch round industriously till we found something less eccentric" (James 1907, p. 31).

Argument 4: Because fallibilism is true: no empirical opinion or statement, no matter how well supported by present or past experience, can ever be regarded as final or absolutely unrevisable. The basic idea was formulated crisply and cogently by Peirce: "Positive science can only rest on experience; and experience can never result in absolute certainty, exactitude, necessity, or universality" (CP 1.55).[5] But if our credences and commitments can never be regarded by us as anything more than promising hypotheses or conjectures, there can be no perfectly certain and fixed foundation for knowledge, no self-certifying and incorrigible judgments on which our thinking can rest: "We have to live to-day by what truth we can get today, and be ready to-morrow to call it falsehood" (James 1907, p. 100; cf. James 1897, p. 17; 1902, pp. 282–283). Traditional foundationalisms, which hold out the promise of impeccable ultimate premises, are consequently a lost cause.

Argument 5: Peirce's critique of traditional foundationalism, it should be noted in passing, is closely linked to his radical critique of the Cartesian picture of inquiry. According to Descartes, the foundations of knowledge are the proper starting-point of reflection, and philosophy cannot get off the ground until we uncover a set of self-evident or intrinsically credible judgments via the method of doubt. In contrast, Peirce takes the view that we must start from where we find ourselves, with all the beliefs and prejudices we hold and do not doubt, mindful that competent inquiry is self-correcting and that no falsehood can go undetected in the long run:

> We cannot begin with complete doubt. We must begin with all the prejudices which we actually have when we enter upon the study of philosophy. A person may, it is true, in the course of his studies, find reason to doubt what he began by believing; but in that case he doubts because he has some positive reason for it, and not on account of the Cartesian maxim. Let us not pretend to doubt in philosophy what we do not doubt in our hearts (CP 5.265; cf. CP 2.47, 5.416, 5.419, 6.498, 8.191).

Philosophy and science alike, then, can dispense with a faultless foundation. As Peirce puts it, inquiry "is not standing upon the bedrock of facts. It is walking upon a bog, and can only say, this ground seems to hold for the present. Here I will stay until it begins to give way" (CP 5.589).

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V

It is no secret that devout positivists used to dream of the day when theories would become indubitable facts, this miraculous metamorphosis having been brought about by an irresistible flood-tide of objective evidence. As a radical fallibilist, James rejects this lucid dream of reason; incertitude and ambiguity, he is convinced, can never be banished from our science or from our lives. But why does James think we should side with him, and not with the slumbering positivists?

Argument 1: Because scientific theories are imaginative human creations which transcend the evidence and are underdetermined – dramatically so – by observational data: "[S]ometimes alternative theoretic formulas are equally compatible with all the truths we know" (James 1907, p. 98). How can we be sure that the theory we have backed is the right one, and that all its rivals are wrong? The answer is that we cannot. Indeed, we cannot be confident that the true theory has even been formulated yet, or that our current concepts and categories will figure in its vocabulary. Notice what this implies: if all theories are provisional and potentially erroneous, and if observation depends on theory, the uncertainty of theories trickles down to the observational level, permeating the porous foundation of our allegedly "hard" data. To vary the metaphor: if the lens through which we look at the world is faulty or cracked, our perception of its contents will inevitably be warped, distorted, and limited.

Argument 2: Because the history of scientific inquiry indicates that our very best theories – hypotheses once thought to be correct and complete – have always needed to be replaced or revised: "Experience, as we know, has a way of *boiling over*, and making us correct our present formulas ... Ptolemaic astronomy, Euclidean space, Aristotelian logic, scholastic metaphysics, were expedient for centuries, but human experience has boiled over those limits" (James 1907, p. 100). The truth is that none of our scientific "truths" have endured or abided; instead of being permanent or eternal, each has been overtaken by a younger rival who offers a more satisfactory account of old phenomena or illuminates newly found facts. Is there good reason to think that science's future will not resemble its past in this respect? Surely not: "It would be absurd to affirm that one's own age of the world can be beyond correction by the next age" (James 1902, p. 282).

Argument 3: Because human inquirers are mere mortals whose natural faculties are not perfectly trustworthy, and who are frequently led astray by their worship of Baconian idols.[6] Armed with the knowledge that we are liable to make mistakes even when operating under epistemically favorable conditions, we can be morally certain of two things: a great many of our current opinions about matters of fact are probably false (at least to some degree), and future generations of inquirers will be as bemused by our blunders as we are pained by the spectacle of crude ancestral error. James gets at the heart of the matter with a simple question: "Is it then likely that the science of our own day will escape the common doom; that the minds of its votaries will never look old-fashioned to the grandchildren of the latter? It would be folly to suppose so" (James 1897, p. 326).

Argument 4: Because true opinions, as Peirce taught us in the late 1870s, are those which will be accepted at the end of inquiry: "The opinion which is fated to be ultimately agreed to by all who investigate, is what we mean by truth" (CP 5.407). But if the truth is what will be accepted at the end of inquiry, and we can never know that we have

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reached the end of inquiry into any question, then men and women imbued with what Peirce calls "the scientific spirit" (CP 1.55) should not make overconfident assertions or pretend to be perfectly sure of anything. This Peircean conclusion is enthusiastically seconded by James: "Owing to the fact that all experience is a process, no point of view can be the last one. Everyone is insufficient and off its balance, and responsible to later points of view than itself" (James 1907, p. 90). Absolute truth, James declares, must consequently be regarded as a regulative ideal which we can only hope to approximate or approach asymptotically: "The 'absolutely' true, meaning what no farther experience will ever alter, is that ideal vanishing-point towards which we imagine that all our temporary truths will some day converge" (James 1907, p. 100, cf. p. 113; cf. James 1909, pp. 266–267).

Argument 5: Because we encounter two kinds of intractable disagreement among inquirers. In the first place, there is no substantive proposition in science or philosophy which virtually all competent judges regard as indubitable: "Apart from abstract propositions of comparison (such as two plus two are the same as four), we find no proposition ever regarded by anyone as evidently certain that has not either been called a falsehood, or at least had its truth sincerely questioned by someone else" (James 1897, p. 15). In short, what one *maître penseur* presents as settled and final is frequently doubted or even denied by another sage of equal standing. In the second place, no-one seems to know how we can recognize the truth when we have it, since philosophers cannot agree about what the criteria or marks of truth are: "No concrete test of what is really true has ever been agreed upon ... The intellect even with truth directly in its grasp, may have no infallible signal for knowing whether it be truth or not" (James 1897, pp. 15–16). But if we possess no fool-proof way of knowing that we have the truth firmly in our grasp, certainty is clearly out of the question.

Argument 6: Because the influential Cartesian picture of the mind is mistaken. According to Descartes, we can have certain or incorrigible knowledge of the present contents of our own minds: our thoughts, beliefs, sensations, feelings, memories, ideas, and so forth. James reminds us, however, that our mental states are not self-intimating, and that they cannot be caught without the net of theory: "If to *have* feelings or thoughts in their immediacy were enough, babies in the cradle would be psychologists, and infallible ones. But the psychologist ... must report them and write about them, name them, classify and compare them" (James 1890, I, p. 189). Yet it is plainly possible for me to mislabel the fleeting and protean episodes which make up my inner life: "And as in the naming, classing, and knowing of things in general we are notoriously fallible, why not also here?" (James 1890, I, p. 189).

Argument 7: Peirce, it should be noted, had an interesting argument of his own against Cartesianism's contention that self-knowledge is certain. For Descartes and his successors, knowledge of our own mental states presupposed no knowledge of the external world; truths about our subjectivity, unlike truths about external objects, were supposedly known immediately or non-inferentially by means of introspection. According to Peirce, this is a colossal faux pas. Because external things alone are known directly, and because we lack the mysterious faculty of introspection on which Cartesians rely, our beliefs about the contents of our minds are not the things we know first and best. On the contrary, such putatively basic beliefs are mediated and fallible, for they are hypotheses introduced to explain phenomena in the outer world: "We have no power of

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Introspection, but all knowledge of the internal world is derived by hypothetical reasoning from our knowledge of external facts" (CP 5.265; cf. CP 5.244–5.249, CP 8.144). One corollary of this denial is that the Cartesian problem of the external world – "How can I know anything about the world outside my mind if all I am directly acquainted with are my subjective representations or ideas?" – is spurious or ill-posed.

VI

Science, it is said, can give us the truth about reality. Yet – to echo a Roman who was no philosopher – what is truth? According to the traditional correspondence theory, a true judgment (idea, belief, statement, claim, theory) is one which corresponds or agrees with the way the world is (reality, the facts, states of affairs). In other words, the traditional correspondence theory of truth rests on a bifurcation between thought and reality, where the aim of the former is to represent (copy, reflect, fit, picture, mirror, match, map, be adequate to) things in the latter domain fairly and correctly. Truths thus conform to what already is, copying or reproducing the objective world in the subjective medium of mind without distortion or bias, addition or subtraction. That the earth orbits the sun, that F = ma, that Gettysburg is in Pennsylvania, that Tokyo's population currently exceeds that of Krakow, that the cat is on the mat: these declarations are true because they tell it like it is, accurately describing a fully determinate and antecedently given order of things.

On the face of it, no philosophical theory seems less objectionable or more commonsensical than this one. However, the correspondence theory's initial plausibility diminishes significantly as soon as one starts asking questions about its presuppositions and its implications; and this is what James did. Here are a few of his main questions and concerns.

Argument 1: Since the term "correspondence" has typically served as a metaphor whose practical meaning or cash-value remains obscure, the traditional correspondence theory seems to be more of a platitude than a theory. For if we are never told what it is for an idea or a thought to correspond with reality, and if we do not know what difference this makes to our experience or conduct, what point is there in promulgating the slogan that "truth is correspondence?" James's statement of this complaint is crystal-clear: "The pragmatizing epistemologist posits … a reality and a mind with ideas. What, now, he asks, can make these ideas true of that reality? Ordinary epistemology contents itself with the vague statement that the ideas must 'correspond' or 'agree'; the pragmatist insists on being more concrete, and asks what such 'agreement' may mean in detail" (James 1909, p. 191; cf. James 1907, p. 91; 1909, pp. 66–70). James's worry was shared by John Dewey (1859–1951), the most influential pragmatist thinker of the twentieth century, who protested that the correspondence theory's champions speak of a Something-We-Know-Not-What – "a Relation at Large" – instead of offering us a concretely informative account of the relation between thought and existence: "The average intellectualist has got so accustomed to taking truth as a Relation at Large, without any specification or analysis, that any attempt at a concrete statement of just what the relationship is appears to be a denial of the relation itself" (Dewey 1910, p. 158, cf. p. 160).

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Argument 2: Scientific theories win acceptance and get themselves called "true," James thinks, chiefly because they work well in practice, rendering experience more intelligible and our dealings with it less frustrating and more satisfying. What should we conclude from this? Two things. First, truth in science is for all intents and purposes the same as what "works," or what best serves our manifold interests: "Purely objective truth, truth in whose establishment the function of giving human satisfaction in marrying previous parts of experience with newer parts played no role whatever, is nowhere to be found ... Truth in science is what gives us the maximum possible sum of satisfactions, taste included" (James 1907, pp. 32–33, 98).[7] Second, scientific theories should be understood as tools or instruments for making predictions, not as maps of an esoteric or unobservable realm: "Investigators have become accustomed to the notion that no theory is absolutely a transcript of reality, but that any one of them may from some point of view be useful. Their great use is to summarize old facts and lead to new ones" (James 1907, p. 30, cf. p. 86). True thoughts and theories, we may conclude, "correspond" to reality only in the sense of being fitting or fruitful responses to the shifting rhythms of experience.[8]

Argument 3: The representationalist relation of correspondence or agreement was supposed to obtain between an item within our experience (ideas, thoughts, judgments, beliefs) and something lying outside of experience (things in themselves, objective facts, reality's built-in nature). However, our experiencing and observing always take place within a scheme of concepts or categories, so we can never compare that scheme with independent things apprehended without its aid: "When we talk of a reality 'independent' of human thinking, then, it seems a thing very hard to find" (James 1907, p. 112). But if we can never determine whether our judgments or theories accurately represent a world beyond experience, we can never know whether our judgments or theories are correspondence-true. And in that case, we are saddled with what Walt Whitman called "the terrible doubts of appearance" – doubts, that is, which force us to confront the vertiginous possibility that our world-picture might be massively false:

> Of the terrible doubts of appearances,
> Of the uncertainty after all, that we may be deluded ...
>
> May-be the things I perceive, the animals, plants, men, hills, shining and flowing waters,
> The skies of day and night, colors, densities, forms, may-be these are (as doubtless they are)
> mere apparitions, and the real something has yet to be known.[9]

Furthermore, if we are thoroughgoing empiricists who believe that nothing can be conceived of except in experiential terms, we must hold that "the truth-relation is a definitely experienceable relation" (James 1909, p. 235, cf. pp. xvi, 75, 124–126, 133–134). Hence, we must regard the relation called "correspondence" as literally unthinkable – a mere name or *flatus vocis* – when understood in standard representationalist terms. Talk of "correspondence" or "agreement" thus makes sense only if it refers to a relation which connects one portion of our experience with another in a way we find fitting or good: "Ideas (which themselves are but parts of our experience) become true just in so far as they help us to get into satisfactory relation with other parts of our experience ... Any idea upon which we can ride, so to speak; any idea that will carry us prosperously from any one part of our experience to any other part, linking

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things satisfactorily, simplifying, saving labor; is true for just so much, true in so far forth, true *instrumentally*" (James 1907, p. 30; cf. Dewey 1910, p. 156; cf. pp. 95, 109). Unless this way of understanding correspondence or agreement is acceptable, James intimates, the correspondence theory cannot be reconciled with empiricism.[10]

Argument 4: Because observation is necessarily conditioned by practical interests and biases, our sensory awareness of our immediate surroundings is always highly selective, and perception without conceptualization is a myth. But (James's argument now takes a novel turn) why do we interpret or conceptualize experience in the ways that we do? Not because our classificatory principles or categories correspond to the intrinsic nature of things, but because these intellectual forms or habits are useful – because they organize and interpret our experience in ways we deem satisfactory or good. Consider our common-sense metaphysic, whose constituent elements are identified in a splendid passage which deserves to be cited in its entirety:

> The notions of one Time and one Space as single continuous receptacles; the distinction between thoughts and things, matter and mind; between permanent subjects and changing attributes; the conception of classes with subclasses within them; the separation of fortuitous from regularly caused connections; surely all these were once definite conquests made at historic dates by our ancestors in their attempts to get the chaos of their crude individual experiences into a more shareable and manageable shape. They proved of such sovereign use as *denkmittel* that they are now a part of the very structure of our mind. We cannot play fast and loose with them. No experience can upset them. On the contrary, they apperceive every experience and assign to it its place.
>
> To what effect? That we may the better foresee the course of our experiences, communicate with one another, and steer our lives by rule. Also, that we may have a cleaner, clearer, more inclusive mental view (James 1909, pp. 62–63; cf. James 1907, pp. 79–80).

In this passage James calls our attention to two key points. The first is that all of us, as a matter of fact, consistently interpret our experience by means of certain categories or intellectual forms – thoughts and things, mind and matter, substance and attribute, space and time, causality – which are human discoveries or inventions, like wheels and wine, adzes or bricks.[11] The second is that we employ this interpretive framework not because we can prove that it cuts Nature at the joints – this would require exactly the sort of theory-independent access to reality which James, a staunch critic of the given, has argued we can never have – but because we have found that it pays handsomely to think in these terms. The old idea that the validity of our conceptual scheme is a matter of *adequatio rei et intellectus* has thus become otiose.

Argument 5: Moreover, if the old correspondence theory is correct, it stands to reason that there can ultimately be only one true description of the world, because only one scheme of concepts or categories can accurately match reality's fixed intrinsic structure. But James, rather like the irrealist Nelson Goodman in *Ways of Worldmaking* (1978), believes there are many true descriptions of reality: "Common sense is better for one sphere of life, science for another, philosophic criticism for a third; but whether either be truer absolutely, Heaven only knows" (James 1907, p. 86, cf. p. 87). That is to say, James thinks that while each of these three incommensurable frameworks gives us some truth, fulfilling some vital human need or meeting deeply felt demand, none embraces the whole; and none can claim absolute or acontextual priority over the rest.

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If anyone wonders what moral we should draw from all this, James is quick to put in a good word for "the pragmatistic view that all our theories are *instrumental*, are mental modes of *adaption* to reality, rather than revelations or gnostic answers to some divinely instituted world-enigma" (James 1907, p. 87, cf. p. 28). Once again, then, the received representationalist understanding of correspondence is put on the defensive.

Argument 6: Thanks in large part to the work of Darwin, we are finally in a position to acknowledge "how entirely the intellect is built up of practical interests" (James 1897, p. 84). Now, what implications does this momentous discovery have for philosophical treatments of truth? If the human intellect is the product of natural selection, one line of reasoning runs, we are clearly entitled to conclude that the bulk of its outputs (perceptions, judgments, ideas, conceptual schemes) have survival value – that they are adaptive or life-enhancing. But it is perfectly possible for an output to have survival value without representing reality faithfully or precisely. Moreover, there is reason to think that creatures whose faculties represented their environment with perfect fidelity, capturing each and every detail or nuance for its own sake, would not be long for this world. These facts, James believes, support the pragmatist view that the value-laden epithet "true" refers first and foremost to ways of thinking that are life-enhancing and adaptive, expedient or practically useful: "True ideas would never have been singled out as such, would never have acquired a class name, least of all a name suggesting value, unless they had been useful from the outset in this way" (James 1907, p. 93, cf. p. 37).

Argument 7: Here is another way of making the same point. Our minds are evidently meant to make a difference in the world, James opines, not to represent things for the sake of representing them: "The notion of a reality calling on us to 'agree' with it, and that for no reasons, but simply because its claim is 'unconditional' or 'transcendent,' is one that I can make neither head nor tail of" (James 1907, p. 105; cf. James 1909, pp. 78–80). To put it another way: our thinking must be good for something, and the practical function of true thoughts is to complement what exists, to develop reality's latent potential and bring something better into being – as when new notes are added to old ones in order to form a pleasing chord. Anticipating John Dewey's ambitious critique of spectatorial theories of knowledge which model human knowing on passive beholding,[12] James states his anti-representationalist credo as follows: "Truth we conceive to mean everywhere, not duplication, but addition; not the constructing of inner copies of already complete realities, but rather the collaborating with realities so as to bring about a better result" (James 1909, p. 60; cf. James 1907, pp. 113–116). Yet the old-fashioned correspondence theory asserts that our thoughts are made true by an antecedently given reality or a ready-made world – by facts existing in the past or by present states of affairs. So, the familiar correspondence theory looks backward instead of forward, dwelling on roots instead of fruits, the old instead of the new, mimesis instead of poesis, memory rather than hope.

VII

Do science's glorious triumphs leave any room for faith in God? Before philosophers of science or religion ask such questions, James thinks, they should ask themselves what difference the existence of a God would make to our experience or conduct. In other

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words, how would a universe with a God differ practically from a universe without one? James's answer is that the future of the first universe would differ from the future of the second in one noteworthy respect:

> The notion of God … guarantees an ideal order that shall be permanently preserved. A world with a God in it to say the last word, may indeed burn up or freeze, but then we think of him as still mindful of the old ideals and sure to bring them elsewhere to fruition; so, where he is, tragedy is only provisional and partial, and shipwreck and dissolution not the absolutely final things. This need of an eternal moral order is one of the deepest needs of our breast (James 1907, pp. 50–51; cf. James 1902, p. 426; James 1909, pp. xiv, 189–190).

An unseen power greater than ourselves who recognizes us as individuals, who sympathizes with our highest ideals, and who can be counted on to work and fight mightily for their realization – this, for James, is the pragmatic meaning of generic theism.[13] But is theism, so construed, defensible? Many a sober nineteenth century positivist or unsentimental empiricist would have denied it on the basis of the following argument:

Premise 1: We are entitled to believe in the objective reality of a thing if and only if (a) we observe or experience it directly, or (b) we can infer its existence from what we observe or experience directly.

Premise 2: However, Option (b) can be ruled out, because we are not entitled to infer the existence of a God from what we observe or know by means of our senses. Indeed, thanks to the combined efforts of Hume, Kant, and Darwin, we can write natural theology's death certificate.

Premise 3: Option (a), too, can be ruled out, since common sense and religious orthodoxy agree that God cannot be apprehended via sense-perception: "No man hath seen God" (John 1:18).

Conclusion: A consistent empiricist cannot be anything but a religious skeptic. The only remaining question is whether we are entitled to deny that a deity exists (atheism), or whether it would be more philosophical for us to suspend judgment (agnosticism).

James's response to this argument, whose conclusion he rejects, draws on three commitments which are central to his philosophy of religion: his skepticism about natural theology, his critique of evidentialism, and his account of mystical experience. Let us take these in order.

VIII

The first thing to note, then, is that James agrees wholeheartedly with Premise 2. None of the traditional arguments for God's existence, he avers, is impeccable or logically airtight; and none will compel an uncommitted or resolutely skeptical reader to change her mind. As a result, philosophical reasoning cannot ground religious belief in the way that natural theologians once hoped:

> The arguments for God's existence have stood for hundreds of years with the waves of unbelieving criticism breaking against them, never totally discrediting them in the ears of

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> the faithful, but on the whole slowly and surely washing out the mortar from between their joints. If you have a God already whom you believe in, these arguments confirm you. If you are atheistic, they fail to set you right … The fact is that these arguments do but follow the combined suggestions of the facts and of our feeling. They prove nothing rigorously. They only corroborate our pre-existent partialities (James 1902, pp. 363, 364–365).

What specific "arguments for God's existence" does James have in mind? Chiefly the old-fashioned argument from design, or what Kant dubbed "the physico-theological proof." Like many of his fellow empiricists, James thought that this was the most persuasive proof of God's existence, but that its credibility had been damaged irreparably by Darwin's theory of evolution via natural selection. This point is driven home forcefully at several places in James's later writings:

> As for the argument from design, see how Darwinian ideas have revolutionized it. Conceived as we now conceive them, as so many fortunate escapes from almost limitless processes of destruction, the benevolent adaptations which we find in Nature suggest a deity very different from the one who figured in the earlier versions of the argument (James 1902, p. 364).
>
> It is strange, considering how unanimously our ancestors felt the force of this argument, to see how little it counts for since the triumph of the Darwinian theory. Darwin opened our minds to the power of chance-happenings to bring forth "fit" results if only they have time to add themselves together. He showed the enormous waste of nature in producing results that get destroyed because of their unfitness. He also emphasized the number of adaptations which, if designed, would argue an evil rather than a good designer. Here all depends upon the point of view. To the grub under the bark the exquisite fitness of the woodpecker's organism to extract him would certainly argue a diabolical designer (James 1907, p. 52).

Here James, with a deft nod to the author of *On the Origin of Species*, presents two interesting objections to a popular version of the design argument.[14] Let us take a moment to expound them.

Objection 1: Darwin came up with a simple, powerful, and purely natural explanation of the biological and physiological facts which motivated the classical argument from design. Instead of needing to invoke a supernatural designer to explain the way things in Nature fit together *à la* William Paley, say Darwinians, we can now account for such facts as the joint products of fortuitous variation and natural selection: "Darwin opened our minds to the power of chance-happenings to bring forth 'fit' results if only they have time to add themselves together" (James 1907, p. 52). And because adaptations can now be understood as the slowly ripening fruits of time and chance, students of natural history are finally in a position to quote Laplace's reply to Napoleon's question about God's role in astronomy: *Je n'ai pas besoin de cette hypothèse*.

Objection 2: Darwin's copious and detailed observations have made it impossible for even the most sedentary reader to deny Nature's wasteful and violent ways: "Darwin … showed the enormous waste of nature in producing results that get destroyed because of their unfitness. He also emphasized the number of adaptations which, if designed, would argue an evil rather than a good designer" (James 1907, p. 52). Look round the world, declaims Cleanthes in Hume's *Dialogues Concerning Natural Religion*, and you shall find it to be nothing but one great machine: as beautifully efficient, harmonious, and admirable as a well-made Swiss timepiece. Look round the world, Darwin remarks,

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and you will find it to be a Malthusian scene of scarcity and strife, an amoral theater of agony and endless destruction.

If we are card-carrying empiricists antecedently convinced that all our knowledge of God must be derived from our knowledge of Nature's ways, it looks as though there are two conclusions we must draw: (i) we have no logical right to infer that Nature's God is the benevolent Almighty whom our pious ancestors worshipped (since that would be a non sequitur); and (ii) we have no logical right to believe in a supremely good and powerful God at all (since the existence of such a being seems belied by the grim state of the world). Admit that God's ways can only be understood via the wild and parlous struggle for existence, James concludes, and you shall end up with a God whom you cannot trust or relate to at all – a God who, being totally incomprehensible from our point of view, is worlds away from Paley's avuncular Watch-maker: "The designer is no longer the old man-like deity. His designs have grown so vast as to be incomprehensible to us humans" (James 1907, p. 53).

Objection 3: Elsewhere, James argues that talk of "design" in the abstract explains nothing in particular, because anything that happens can be interpreted as the product of design: "The truth is that any state of affairs whatever that can be named is logically susceptible of teleological interpretation" (James 1902, p. 364; cf. James 1907, p. 53). To see what James is driving at, let us consider a concrete example – the terrible devastation wrought on the island of Martinique by the eruption of Mont Pelée in 1902.

> Remember that *no matter what* nature may have produced or may be producing, the means must necessarily have been adequate, must have been *fitted to that production*. The argument from fitness to design would consequently always apply, whatever were the product's character. The recent Mont Pelée eruption, for example, required all previous history to produce that exact combination of ruined houses, human and animal corpses, sunken ships, volcanic ashes, etc., in just that hideous configuration of positions. France had to be a nation and colonize Martinique. Our country had to exist and send our ships there … (James 1907, p. 53; cf. James 1902, p. 364).

A moment's reflection should convince you of two things: (i) that conditions "adequate" or "fit" to produce the catastrophe on Martinique actually obtained, and (ii) that if even one of those conditions had been different, the condition of Martinique on the 8th of May in 1902 would have been different. And yet – this is where James goes on the offensive – don't natural theologians insist that this sort of exquisite fit between apparently independent things, this fine and delicate adjustment between means and ends in Nature, constitutes very strong evidence of design? If so, philosophically-minded theists should surely think twice about deploying "the argument from fitness to design" (James 1907, p. 53).

Objection 4: Finally, James claims that "[w]hen one views the world with no definite theological bias one way or the other, one sees that order and disorder, as we now recognize them, are purely human inventions" (James 1902, p. 364). That is to say, the arrangements which we are accustomed to call "orderly" are simply arrangements which happen to serve our practical interests, satisfy our subjective preferences, or gratify our aesthetic sense. To put it another way: we discover "order" because we look for it, and we look for it because we cannot act or live at all without some awareness of

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it. And because we attend selectively to the presence of such indispensable arrangements, we greatly overestimate the proportion of order to disorder in Nature as a whole:

> We are interested in certain types of arrangement, useful, aesthetic, or moral, – so interested that whenever we find them realized, the fact emphatically rivets our attention. The result is that we work over the contents of the world selectively. It is overflowing with disorderly arrangements from our point of view, but order is the only thing we care for and look for, and by choosing, one can always find some sort of orderly arrangement in the midst of any chaos (James 1902, p. 364).

Our natural bias in favor of certain sorts of satisfying arrangements, our habit of seeking them out and attending to them, our willingness to name and remember them, our dependence on them in practice – these things blind us to the fact that such configurations or patterns are few and far between in the grand scheme of things. According to James, this realization should shake our confidence in the starting-point of the physico-theological proof – to wit, the proposition that the natural world seems positively permeated by order. For if "[t]he facts of order from which the physico-theological argument starts are thus easily susceptible of interpretation as arbitrary human products" (James 1902, p. 365), that argument's once-solid foundation now seems little more than a mound of pulverized rubble.

As far as James is concerned, then, fin de siècle empiricists are well within their rights when they endorse Premise 2; for it seems there is no good inference from Nature to God if the classical argument from design is a bust.

IX

We now turn to Premise 1, which depends upon a form of faith-annihilating evidentialism articulated by W. K. Clifford (1845–1879) in "The Ethics of Belief": "It is wrong always, everywhere, and for everyone, to believe anything upon insufficient evidence" (cited in James 1897, p. 8). Clifford's sufficient evidence principle (SEP, for short) may initially sound plausible, even indisputable; but James maintains it should be rejected for a multitude of reasons.

Objection 1: Science proceeds on the assumption that Nature is uniform, and that the future will resemble the past in certain fundamental respects. However, David Hume showed that our belief in Nature's uniformity is groundless – a mere article of animal faith which we can neither prove nor doubt. It follows that we should not put any stock in science *if the SEP is true*. Science-loving SEP-ers like Clifford, observes James, sidestep this inconvenient truth only by being inconsistent: "The necessity of faith as an ingredient in our mental attitude is very strongly insisted on by the scientific philosophers of the present day; but by a singularly arbitrary caprice, they say that it is only legitimate when used in the interests of one particular proposition, – the proposition, namely, that the course of nature is uniform" (James 1897, p. 91).

Objection 2: Like all thinkers and inquirers who are not totally skeptical, SEP-ers believe that our belief-forming faculties are trustworthy or reliable, at least under ordinary conditions. In other words, they blithely take it for granted "that there is a truth,

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and that it is the destiny of our minds to attain it … that truth exists, and that our minds can find it" (James 1897, p. 12, cf. pp. 9, 17). Yet there can be no non-circular argument for this natural and indispensable assumption, since anyone who attempts to demonstrate that human faculties are trustworthy (or any other proposition, for that matter) must begin by assuming the very thing she seeks to prove. We must conclude, therefore, that all our thinking and doubting ultimately rest on a dogma which SEP-ers should condemn as groundless (since there is no evidence or independent support for it), but which they cannot dispute without taking its truth for granted (since all argument and inquiry proceed implicitly on this assumption).

Objection 3: Worst of all, it looks as if the SEP is logically self-undermining or self-referentially incoherent. This point can be made in two ways: (i) If the SEP is true, it is always wrong to believe on the basis of insufficient evidence or reasons. But Clifford and his golden-throated cohorts, who never grow weary of warning their *Popular Science*-reading congregation about the dangers of faith and the perils of credulity, have not given us any good reasons for believing the SEP. Hence if that principle is true, its defenders have no business believing it. (ii) The SEP "postulates that our paramount duty is to escape error" (James 1916, p. 222; cf. James 1897, pp. 17–19). However, the judgment that it is always better to avoid error than to believe the truth merely expresses the peculiar temperament or passional nature of SEP-ers: "These feelings of our duty about either truth or error are in any case only expressions of our passional life" (James 1897, p. 18). Hence the SEP, which tells us to base our judgments on impersonal reasons and objective evidence, is not itself based on impersonal reasons or objective evidence.

Objection 4: Furthermore, the only people who are likely to be attracted to the risk-averse outlook which expresses itself through the SEP are certainty-craving conservatives who are ruled more by the fear of making a mistake than by the hope of gaining truth: "He who says 'Better go without belief forever than believe a lie!' merely shows his own preponderant private horror of becoming a dupe. He may be critical of many of his desires and fears, but this one he slavishly obeys" (James 1897, p. 18). This discovery gives the lie to the flattering self-image cultivated by the SEP's defenders: that of bold iconoclasts and progressive firebrands, of intrepid free-thinkers who fear neither man nor God. How, one wonders, can these supposedly dispassionate debunkers be so deluded or self-deceived? What is more, modern empiricists should be radical fallibilists, so why would any scientifically-minded philosopher find the prospect of error terrible or intolerable? As James says, "[o]ur errors are surely not such awfully solemn things. In a world where we are so certain to incur them in spite of all our caution, a certain lightness of heart seems healthier than this excessive nervousness on their behalf. At any rate, it seems like the fittest thing for the empiricist philosopher" (James 1897, p. 19).

Objection 5: Again, SEP-ers face a dilemma. If "sufficient evidence" means "evidence which makes a proposition certain for us," then the SEP entails a form of radical skepticism, because we cannot be absolutely certain about anything except what is immediately present to consciousness: "There is but one indefectibly certain truth, and that is the truth that pyrrhonistic skepticism itself leaves standing, – the truth that the present phenomenon of consciousness exists" (James 1897, pp. 14–15). This means that if you reject belief in God simply because that belief is not certain, you will have to

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reject much more than that – virtually everything you currently believe, in fact. On the other hand, if "sufficient evidence" does not mean "evidence which makes a proposition certain for us," then the SEP leaves room for acts of faith and potentially risky overbeliefs, since "faith means belief in something concerning which doubt is still theoretically possible … faith is the readiness to act in a cause the prosperous issue of which is not certified to us in advance" (James 1897, p. 90). And faith in this sense, James holds, is both practically indispensable and ubiquitous.[15]

Objection 6: The previous objection can be developed further. As we have noted, the second (and more liberal) interpretation of the SEP implies that it would be inconsistent of you to condemn belief in God simply because God's existence is not certain. Nevertheless, you might very well reject the hypothesis of generic theism not merely because it is uncertain, but because of *how* uncertain you think it is. However, you must be consistent; you cannot reject theism because it is underdetermined by the facts while accepting any equally underdetermined belief. By now the reader can likely see where this is leading: since the gap between theory and evidence in science and common sense is by no means negligible if James's radical fallibilism is true, SEP-based objections to the hypothesis of theism cannot carry the day unless it can be shown that faith in a God is more underdetermined by the data than the most underdetermined hypothesis which SEP-ers think it reasonable to accept and act upon. Can this be shown? Before answering in the affirmative, SEP-ers should do at least two things: ponder Objections 1–3, and consider the claims of mysticism.

Objection 7: If the SEP is true, you should never believe anything until you have sufficient evidence for it, and you should never let your beliefs be determined by your passional nature; that is, by your interests, purposes, hopes, desires, feelings, volitions, or aspirations. Yet there are conditions under which it is definitely permissible for you to do both of these things. Example: Suppose a novice mountain climber, facing a life or death situation alone high in the Alps, will perish unless she can execute a dangerous chasm-bridging leap which is unlike anything she knows she is capable of. If she believes she can make the jump in question, she has a very good chance of making it; but if she doubts herself and hesitates, she will plummet to her death. Surely, she has the right to believe that she will succeed, despite the fact that she lacks sufficient evidence for that saving belief: "In this case (and it is one of an immense class), the part of wisdom clearly is to believe what one desires; for the belief is one of the indispensable preliminary conditions of the realization of its object. *There are then cases where faith creates its own verification*" (James 1897, pp. 97, cf. pp. 24–25, 59; James 1909, p. 256). What SEP-ers have overlooked, James concludes, is that our thinking is ultimately for the sake of action: "Our faculties of belief were not primarily given us to make orthodoxies and heresies withal; they were given us to live by" (James 1897, p. 56; cf. James 1916, p. 221).

Objection 8: The best life for human beings, James thinks, is the strenuous life – a heroic existence devoted to a demanding ideal which you have chosen, and for whose sake you are prepared to fight and suffer.[16] Yet it is impossible to live the strenuous life in any of its innumerable forms unless you are willing to take chances and run risks: "Who gains promotions, boons, appointments, but the man in whose life they play the part of live hypotheses, who discounts them, sacrifices other things for their sake before they have come, and takes risks for them in advance? … It is only by risking our persons from one hour to another that we live at all" (James 1897, pp. 24, 59). The strenuous life thus

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depends on a form of obstinate faith or unyielding over-belief which is practically indistinguishable from courage or soldierly valor; for what is that ancient and indispensable virtue if not a willingness to live "on the perilous edge" (James 1890, II, p. 579) and labor hopefully in the face of real danger and fear? Yet the SEP would veto such energizing and scandalously uncertain acts of faith in the name of bloodless *bon sens* and actuarial caution. Accordingly, the SEP must be denounced as a foe of human flourishing, an enemy of the adventurous and self-reliant spirit which James regards as a sine qua non of a meaningful and well-lived life.[17]

Objection 9: Professional philosophers are accustomed to pose as coolly objective and dispassionate intellects, as unprejudiced truth-seekers swayed only by evidence and logic: "Of whatever temperament a professional philosopher is, he tries, when philosophizing, to sink the fact of his temperament" (James 1907, p. 8). A few thinkers even write as if Eternal Reason itself were speaking through them, employing them as mediums or mouthpieces, sibyls or seers. According to James, this picture of philosophy is a sham, because it fails to acknowledge the significant role which personal feeling and temperament must play in philosophy: "The history of philosophy is to a great extent that of a certain clash of human temperaments ... Temperaments with their cravings and refusals do determine men in their philosophies, and always will" (James 1907, pp. 8, 19). In other words, a philosopher's vision, far from being wrought by a mythically pure intellect, inevitably expresses the passional and volitional side of her nature: "Pretend what we may, the whole man within us is at work when we form our philosophical opinions" (James 1897, p. 92). Feelings and preferences, subjective interests and ideals, desires and aversions, sympathies and antipathies, hunches and over-beliefs – all of these elements color the content of our philosophical reasoning and reflection. But if James is right in thinking that the SEP's standard is "ideally as inept as it is actually impossible" (James 1897, p. 92), we should conclude that the SEP is the foe of philosophy, just as it is the foe of science, common sense, and the moral life. Once Clifford's principle is set aside, however, Premise 1 is deprived of support.

X

What about Premise 3? This proposition will seem self-evident or intuitively compelling, James thinks, only if you take it for granted that awareness of existences other than oneself must be sensory or perceptual awareness. However, the latter assumption is rendered problematic by the fact that countless men and women throughout history have had mystical or religious experiences; that is to say, non-sensory or non-perceptual experiences of varying intensity and duration in which it has seemed to them as if some supernatural reality or unseen order (a God, a Divine Mind, a Higher Power, the Absolute, Goodness Itself, the Over-soul, the Great Spirit, the One, the Universal Self) was immediately and intimately present to consciousness. The common core of such transformative experiences (which, James stresses, do not contradict the testimony of our senses) is a sense of joyful liberation from the shackles and burdens of ordinary selfhood, a feeling that one has been given a new and higher life infused with a peace which passeth all understanding. The mystic thus comes away convinced that philosophical pessimism is false, and that all is *not* vanity:

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> We pass into mystical states from out of ordinary consciousness as from a less into a more, as from a smallness into a vastness, and at the same time as from an unrest into a rest. We feel them as reconciling, unifying states. They appeal to the yes-function more than to the no-function in us. In them the unlimited absorbs the limits and peacefully closes the account (James 1902, pp. 347, cf. pp. 50–51).

What does James think we can conclude from the fact that many people in different cultures and epochs have had these epiphanic experiences of deliverance or rebirth? As he sees it, the mystic is entitled to regard her experiences as basically veridical – to believe that they put her in touch with some supernatural presence or divine reality – unless there is some good reason for her to doubt their veracity. Why? Apparently because (i) we think it is reasonable to treat our perceptual experiences as basically veridical unless there is some good reason to doubt them, and (ii) the basic phenomenology of mystical experiences – the brute sense of being confronted by a real presence, of feeling that something is definitely *there* – is strikingly akin in kind to that of perceptual experiences.[18]

> Our own more "rational" beliefs are based on evidence exactly similar in nature to that which mystics quote for theirs. Our senses, namely, have assured us of certain states of fact; but mystical experiences are as direct perceptions of fact for those who have them as any sensations ever were for us. The records show that even though the five senses be held in abeyance in them, they are absolutely sensational in their epistemological quality, if I may be pardoned the barbarous expression, – that is, they are face to face presentations of what seems immediately to exist (James 1902, pp. 353, cf. p. 78).

Although the fact that things appear a certain way to the mystic does not prove that things really are that way, the very same thing can be said of ordinary sense-perception, since it is always theoretically possible that I am merely dreaming, hallucinating, or the purblind plaything of a Cartesian evil demon. Hence if the mere fallibility or potential untrustworthiness of mystical experience is sufficient to disqualify mystical experiences as a source of knowledge of the divine, the mere fallibility or potential untrustworthiness of perception is sufficient to disqualify perceptual experiences as a source of knowledge about the physical world. But the skeptical thesis that sense-perception cannot be counted on to yield knowledge of Nature is one which cannot be endorsed by anyone who has any regard for common sense or science.

Is there any reason, then, why empiricists should not take mystical experiences as evidence of God's existence? Let us consider two such reasons, along with Jamesian rejoinders.

Objection 1: Mystical or religious experiences cannot constitute evidence, because they are not sensory or perceptual in character, unlike properly scientific observations.

Reply: What entitles us to assume that all experiential evidence about reality must be sensory or perceptual in character? Why not suppose instead that all human beings have "*a sense of reality, a feeling of objective presence, a perception* of what we may call *'something there,'* more deep and more general than any of the special and particular 'senses' by which the current psychology supposes existent realities to be originally revealed" (James 1902, p. 67)? This novel hypothesis finds favor with James, who is convinced that mystical experiences

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> break down the authority of the non-mystical or rationalistic consciousness, based upon the understanding and the senses alone. They show it to be only one kind of consciousness. They open out the possibility of other orders of truth, in which, so far as anything in us vitally responds to them, we may freely continue to have faith … The existence of mystical states absolutely overthrows the pretension of non-mystical states to be the sole and ultimate dictators of what we may believe (James 1902, pp. 353, 356).

Furthermore, is not it question-begging to assume that mystical experiences, simply because they are non-sensory, must be delusive? True, there is no denying that experiences of an unseen world or a supernatural order must be reckoned deceptive *if there is no such world or order to be experienced*. However, anyone who affirms the antecedent of this conditional without argument when confronted with what appears to be evidence for supernaturalism is guilty of dogmatism or intellectual complacency – attitudes which will become a practicing empiricist.[19] What is more, the claim that all evidence must be scientific evidence does not itself rest on objective evidence; it simply expresses an arbitrary passional demand on the part of positivists for a certain kind of world – one which can be predicted and controlled, measured and manipulated, mastered and subdued: "These most conscientious gentlemen think they have jumped off their own feet – emancipated their mental operations from the control of their subjective propensities. But they are deluded. They have simply chosen from among the entire set of propensities at their command those that were certain to construct, out of the materials given, the leanest, lowest, aridest, result, – namely, the bare molecular world, – and they have sacrificed all the rest" (James 1897, p. 131, cf. pp. 30, 70, 84). Scientism thus has its origins in faith and subjective preference, not in coercive argument or "sufficient evidence."

Objection 2: The vast majority of people who claim to have had experiences of God were committed believers to begin with. Doesn't their lack of impartiality give us the right to impugn their testimony?

Reply: Suppose for the sake of argument that there really is a personal God – a supernatural being who is wise and good and powerful. Since we know from experience that you usually cannot get to know a person well unless you are willing to meet him halfway, it stands to reason that we will probably not get to know God well unless we meet God halfway, approaching him with openness instead of suspicion, and with sympathetic interest instead of chilly hauteur. But this is essentially what religious faith is – meeting God halfway, with good will and trust. Hence if there is a God, it is very likely that faith is a condition of making God's acquaintance. But if faith is a condition of knowing God as God, the agnostic's neutral and detached stance effectively blocks the road of inquiry.[20] An attitude of perfect objectivity, James concludes, may prevent us from knowing the truth in religion:

> Just as a man who in a company of gentlemen made no advances, asked a warrant for every concession, and believed no one's word without proof, would cut himself off from all the social rewards which a more trusting spirit would earn, – so here, one who should shut himself up in snarling logicality and try to make the gods extort his recognition willy-nilly, or not get it at all, might cut himself off forever from his only opportunity of making the gods' acquaintance. This feeling, forced on us we know not whence, that by obstinately believing that there are gods (although not to do so would be so easy both for our logic

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> and our life) we are doing the universe the deepest service we can, seems part of the living essence of the religious hypothesis. If the hypothesis were true in all its parts, including this one, then pure intellectualism, with its veto on our making willing advances, would be an absurdity; and some participation of our sympathetic nature would be logically required. I, therefore, for one, cannot see my way to accepting the agnostic rules for truth-seeking, or willfully agree to keep my willing nature out of the game. I cannot do so for this plain reason, that *a rule of thinking which would absolutely prevent me from acknowledging certain kinds of truth if those kinds of truth were really there, would be an irrational rule* (James 1897, p. 28).

The second thing that needs to be said in response to this objection is that there is no such thing as unbiased observation or presuppositionless perception. As we have seen, James is convinced that observers must actively seek in order to find, and he believes there is no counting the number of vital truths which science has discovered because some inspired and determined inquirer took the initiative and looked for them patiently, firmly convinced they were out there waiting to be uncovered: "Without an imperious inner demand on our part for ideal logical and mathematical harmonies, we should never have attained to proving that such harmonies lie hidden between all the chinks and interstices of the crude natural world. Hardly a law has been established in science, hardly a fact ascertained, which was not first sought after, often with sweat and blood, to gratify an inner need" (James 1897, p. 55). Yet if this manner of proceeding is permissible in science, how can the positivist propagandist deny the religious seeker the right to employ it?

XI

Although James is sympathetic to generic theism, it would be a grave mistake to attribute to him the view that all sincere inquirers will ultimately discover that they have an intellectual or a moral duty to believe in a God. James's point is more modest: you have an intellectual and moral right to believe in a God if you are so inclined, and the scribes and Pharisees of positivism are in no position to condemn you for doing so. Though significant in itself, James's robust affirmation of our religious right to believe should be seen as an instance of a more general truth whose importance for empiricists can hardly be overstated:

> No one of us ought to issue vetoes to the other, nor should we bandy words of abuse. We ought, on the contrary, delicately and profoundly to respect one another's mental freedom: then only shall we bring about the intellectual republic; then only shall we have that spirit of inner tolerance without which all our outer tolerance is soulless, and which is empiricism's glory; then only shall we live and let live in speculative as well as in practical things (James 1897, p. 30).

Let us be candid and sincere, James pleads; let us stop pretending that philosophy is perfectly presuppositionless, or that our conclusions are reached by what Friedrich Nietzsche called "a cold, pure, divinely unconcerned dialectic" (Nietzsche 1886, p. 12). Instead of trying to "sink" the buoyant fact of temperament, we should let it rise to the

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surface; instead of trying to pass off our contingent preferences as necessary truths, we should admit that our most precious principles are manifestations of will and need. That James himself practiced what he preaches here cannot be doubted by anyone who has read him; indeed, his willingness to acknowledge the personal sources of his own opinions is one of the most disarming and charming features of his engaging style. It seems as if he is forever taking the audience into his confidence, telling us what he can accept and what he cannot, declaring his biases and hopes openly (as when his remarks are prefaced with "For my part" or "I confess"), presenting his subjective demands for what they are, never pretending that they lay down the law for all minds, let alone for the cosmos itself. And this self-revealing tone was not an artifact of fame, for James employed it long before he became a star in the firmament of Anglo-American philosophy. Consider the following excerpts from "Absolutism and Empiricism," a little-known essay from 1884:

> I know very well that in talking of dislikes to those who never mention them, I am doing a very coarse thing, and making a sort of intellectual Orson of myself. But, for the life of me, I cannot help it, because I feel sure that likes and dislikes must be among the ultimate factors of their philosophy as well as of mine. Would they but admit it! How sweetly we then could hold converse together! (James 1912, pp. 144–145).
>
> Again, I know I am exhibiting my mental grossness. But again, *Ich kann nicht anders*. I show my feelings; why will they not show theirs? I know they have a personal feeling about the through-and-through universe, which is entirely different from mine, and which I should very likely be much the better for gaining if they would only show me how. Their persistence in telling me that feeling has nothing to do with the question, that it is a pure matter of absolute reason, keeps me forever out of the pale (James 1912, p. 146).

In these paragraphs, James knowingly violates the protocol of academic debate by mentioning the unmentionable: philosophy's incalculable debt to personal feeling, its subterranean dependence upon the lawless likes and dislikes of poor bare forked animals. And why does he break the rules of philosophical etiquette in a Luther-like act of defiance and nonconformity, declaring "*Ich kann nicht anders*"? Because these rigid professional rules threaten to stifle and starve the very thing they are supposed to nourish and encourage. Personal feeling of one kind or another, he avows, *must* play a vital role in philosophy; and if philosophy cannot be feeling-free, the absurdity of insisting that it ought to be feeling-free must be met head-on. Why, then, should we reproach ourselves for being temperamental thinkers? Why cry foul when we meet with minds whose inner demands differ markedly from our own? Why be scandalized by intractable disagreement, if we know that the evidence for any synoptic vision seems decisive only when viewed through the magnifying glass of a sympathetic temperament? And – last but not least – why not admit that what John Dewey called "the quest for certainty" in philosophy is both quixotic and self-destructive? If all our attempts to understand "how things in the broadest sense of the term hang together in the broadest sense of the term" (Wilfrid Sellars) are underdetermined by objective evidence or impersonal reasons, can we honestly claim that any philosophy is more than an audacious hypothesis or wild surmise which has been adopted voluntarily? The answer seems obvious; we cannot claim any such thing. Because such grand imaginative visions must be regarded as over-beliefs or hopeful acts of faith in whose formation extra-logical factors play a

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significant role, dogmatism has absolutely no place in philosophy: "[A]ll philosophies are hypotheses, to which all our faculties, *emotional as well as logical*, help us" (James 1912, p. 146; my emphasis).[21] But if dogmatism has no more place in philosophy than it does in science or religion, radical fallibilism's empire turns out to be much more extensive than certainty-besotted rationalists have been willing to concede. And this great empire of uncertainty, which excludes none but the incorrigibly dogmatic and intolerant, would appear to be one with the "intellectual republic" of which James speaks with palpable hope.

XII

It was once rather fashionable to regard William James as a good-natured sophist or philosophical soup-seller, an incorrigibly tender-minded soul who cared not a whit for dialectic or consistency. Yet Jamesian pragmatism, I have tried to show, is full of arguments, many of them insightful, penetrating, and provocative. If philosophers have not always realized this – have not managed to spot these arguments, to see them for what they are, and to give James the credit he deserves – it is partly because of his magnificent prose style, which is both colloquial and eloquent, urbane but lofty, witty and playful yet not lacking in gravitas. This unique style expresses a deeply personal vision of the nature of things, yet it leaves ample room for other visions, other voices, other versions of our universe. Such tolerance and generosity, far from being accidental or adventitious, have their roots in James's profound conviction that perception is always selective, and that you cannot see anything clearly unless you ignore a great deal: "To no one type of mind is it given to discern the totality of truth. Something escapes the best of us, – not accidentally, but systematically, and because we have a twist ... Facts are there only for those who have a mental affinity with them" (James 1897, p. 301; cf. p. 219).[22]

Notes

1 "Two excesses: to reject reason, to accept nothing but reason" (*Pensées*, section 172).
2 John Dewey (1859–1951), whose version of pragmatism dominated American philosophy in the 1920s and 1930s, was a PhD student at Johns Hopkins from 1882 until 1884. I shall say next to nothing about Dewey in this chapter, since his weightiest and most original works were written well after the end of the First World War. A treatment of his pragmatic naturalism may be found in McDermid (2016).
3 This was one reason why Peirce re-named his view "pragmaticism" (CP. 5.414; cf. CP 8.205) in 1905.
4 In the words of John J. McDermott, the young James "rejected suicide in favor of a creative life unsupported by certitude" (McDermott 1967, p. xxvii).
5 In the twentieth century, Karl Popper (1902–1994) championed a form of fallibilism much more radical than any I shall consider in this chapter. See McDermid (2012) for details.
6 In Book I of the *Novum Organum* (1620), Francis Bacon identified several "idols" – ways of thinking which distort our view of reality and lead us into error.

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7 Since scientific theories are underdetermined by observational data, scientists can choose between rival hypotheses only by appealing to subjective criteria such as simplicity, elegance, coherence or congruity with entrenched beliefs: "Sometimes alternative theoretic formulas are equally compatible with all the truths we know, and then we choose between them for subjective reasons. We choose the theory to which we are already partial; we follow 'elegance' or 'economy.' Clerk-Maxwell says somewhere that it would be 'poor scientific taste' to choose the more complicated of two equally well-evidenced conceptions; and you will all agree with him. Truth in science is what gives us the maximum possible sum of satisfactions, taste included" (James 1907, p. 98; cf. James 1909, pp. 56–57).

8 As Dewey put it in 1910, "the pragmatist holds that the relation in question is one of correspondence between existence and thought; but he holds that correspondence instead of being an ultimate and unanalyzable mystery, to be defined by iteration, is precisely a matter of correspondence in its plain familiar sense" (Dewey 1910, p. 158; cf. Dewey 1946, p. 343).

9 Kaplan (1983, pp. 97–98).

10 I cannot improve on Richard Gale's formulation of this point: "At the basis of James's objection to the common-sense notion of an unmediated, transcendent correspondence relation is his life-long commitment to empiricism. This notion is empirically vacuous and thus empty, mysterious, and unintelligible" (Gale 2005, pp. 104–105).

11 James's way of understanding our ordinary modes of thought is contrasted with Peirce's critical common-sensism in McDermid (2015).

12 See McDermid (2016) for an overview of Dewey's critique of the spectator theory of knowledge, set forth most fully in *The Quest for Certainty* (1929).

13 Peirce explains what he means by 'God' in a paper entitled "Answers to Questions concerning My Belief in God" (CP 6.502–503).

14 There are other versions of the design argument, of course. See Swinburne (2010, Chapter 4).

15 John Henry Newman (1810–1890) took the same view: "To hear some men speak (I mean men who scoff at religion), it might be thought we never acted on Faith or Trust, except in religious matters, whereas we are acting on trust every hour of our lives" (Newman 1891, p. 123, cf. pp. 124–127).

16 See Section V of "The Moral Philosopher and the Moral Life" (James 1897, pp. 211–213).

17 Religion, James adds, is one way of leading the strenuous life: "The capacity of the strenuous mood lies so deep down among our natural human possibilities that even if there were no metaphysical or traditional grounds for believing in a God, men would postulate one simply as a pretext for living hard, and getting out of the game of existence its keenest possibilities of zest" (James 1897, p. 213).

18 For a recent statement of this view, see Swinburne (2010, chapter 7).

19 This line of thought may remind some readers of the work of Alvin Plantinga (2015), who maintains that ordinary human beings can form non-inferentially justified beliefs about God if naturalism is false and theism is true. For some interesting reflections on the dialectical standoff between the unbelieving naturalist and the God-intoxicated mystic, see Kolakowski (1982, pp. 71–91).

20 According to Peirce, the first rule of reason has "one corollary which itself deserves to be inscribed upon every wall of the city of philosophy: Do not block the road of inquiry" (CP 5.136).

21 Henri Bergson (1859–1941), I think, was absolutely right: "In the eyes of William James, the whole man counts" (Bergson 1911, p. 269).

22 My thanks to John Shand for his helpful comments on an earlier draft of this chapter.

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New Logic and the Seeds of Analytic Philosophy

Boole, Frege

KEVIN C. KLEMENT

Introduction

Simplistic accounts of its history sometimes portray logic as having stagnated in the West completely from its origins in the works of Aristotle all the way until the nineteenth century. This is of course nonsense. The Stoics and Megarians added propositional logic. Medievals brought greater unity and systematicity to Aristotle's system and improved our understanding of its underpinnings (see e.g., Henry 1972), and important writings on logic were composed by thinkers from Leibniz to Clarke to Arnauld and Nicole. However, it cannot be denied that an unprecedented sea change occurred in the nineteenth century, one that has completely transformed our understanding of logic and the methods used in studying it. This revolution can be seen as proceeding in two main stages. The first dates to the mid-nineteenth century and is owed most signally to the work of George Boole (1815–1864). The second dates to the late-nineteenth century and the works of Gottlob Frege (1848–1925). Both were mathematicians primarily, and their work made it possible to bring mathematical and formal approaches to logical research, paving the way for the significant meta-logical results of the twentieth century. Boolean algebra, the heart of Boole's contributions to logic, has also come to represent a cornerstone of modern computing. Frege had broad philosophical interests, and his writings on the nature of logical form, meaning and truth remain the subject of intense theoretical discussion, especially in the analytic tradition. Frege's works, and the powerful new logical calculi developed at the end of the nineteenth century, influenced many of its most seminal figures, such as Bertrand Russell, Ludwig Wittgenstein and Rudolf Carnap. Indeed, Frege is sometimes heralded as the "father" of analytic philosophy, although he himself would not live to become aware of any such movement.

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Boole's Contributions to Logic

George Boole was a native of Lincolnshire, England, although he spent the later part of his life as a mathematics professor at Queen's University in Cork, Ireland. Although now best remembered as a logician, he published more in other areas of mathematics, especially on differential equations, analysis, and probability theory. These writings were highly regarded at the time, and his books *A Treatise on Differential Equations* (1859) and *A Treatise on the Calculus of Finite Differences* (1860) were widely used as textbooks. He wrote only three works on logic. *The Mathematical Analysis of Logic* was published in 1847, followed a year later by the shorter article, "The Calculus of Logic" (1848). The latter reached a larger audience, although the former was more sophisticated and more detailed. His techniques were refined and published in his best-remembered work, *An Investigation of the Laws of Thought*, in 1854. He corresponded with a number of highly respected mathematicians, and his friendship with Augustus De Morgan (1806–1871) is likely what sparked his interest in logic.

At the core of Boole's contributions to logic is the suggestion to treat it using algebraic means. He used variables such as x, y, z for what he at first called "election operators" (understood as operations that gathered things matching some feature into a class), and later simply for the classes themselves. Concatenation—usually used to represent multiplication in algebra—was used for "logical multiplication," or to form what is in common (now called "intersection") between two classes, xy. The sign "+" was similarly used for the sum (or "union") of two classes, or "logical addition," $x+y$. The numeral "1" was employed to represent "the Universe," the class of everything, and "0" to mean "Nothing" or the null class. With these suggestions, we can interpret such equations as the following:

$$x+y=1 \tag{1}$$

$$xy=0 \tag{2}$$

Here, (1) asserts that when x and y are put together, they make everything, so that everything must be in either x or y. Similarly, (2) asserts that the common area between x and y is empty, or that x and y are disjoint. The complement of a class x was represented as its "difference" from 1, i.e., $1-x$. Boole stressed the similarities between the laws of this algebra and regular arithmetical principles, such as the commutativity of addition and multiplication, distributivity, and so on:

$$x+y=y+x \tag{3}$$

$$xy=yx \tag{4}$$

$$x(y+z)=xy+xz \tag{5}$$

$$(1-x)+x=1 \tag{6}$$

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Interpreted logically, (5), for example, asserts that what is in common between class x and everything in either y or z is the class of things either in the commonality between x and y or the commonality between x and z. Boole, however, also made note of differences. In this system, the the commonality of a class and itself, xx or x^2, is identical with the class, so that unlike regular algebra we have:

$$x^2 = x \tag{7}$$

Among Boole's goals was to show that all the rules of Aristotelain syllogistic logic could be reduced to algebraic rules. This of course required capturing the four categories of judgment from the traditional square of opposition. Universal judgments can be captured very naturally:

$$\begin{array}{lcll} \text{A} & : & \text{All } X \text{ are } Y & : \quad xy = x \text{ or } x(1-y) = 0 \\ \text{E} & : & \text{No } X \text{ are } Y & : \quad xy = 0 \text{ or } x(1-y) = x \end{array}$$

To capture particular judgments, Boole introduced a special elective operator v, which selected an arbitrarily chosen non-empty class. He then had:

$$\begin{array}{lcll} \text{I} & : & \text{Some } X \text{ are } Y & : \quad xy = v \text{ or } xv = yv \\ \text{O} & : & \text{Some } X \text{ are not } Y & : \quad x(1-y) = v \text{ or } xv = (1-y)v \end{array}$$

Then, by introducing algebraic rules for reduction and the elimination of middle terms, he showed how the system captured the syllogisms valid in Aristotelian logic. He saw it as superior as it allowed for equations with more than two terms, and bypassed the usual focus on "moods" and "figures," which often required overly rigid principles for ordering premises.

Boole also explained that the system was not only suitable for capturing categorical logic, the logic of "primary propositions," but also, through a suitable reinterpretation, it could capture the logic of "secondary propositions," or what we would now call "propositional logic." Class terms could be interpreted as representing those circumstances (in his earlier work), or those times (in his later work) in which a given judgment is true. One could then understand 1 as the class of all times or circumstances, 0 as the null class again, so that these values could go proxy for truth and falsity, respectively. On this reinterpretation, logical multiplication comes to mean conjunction, and logical addition comes to mean disjunction, and $(1 - x)$ can do for the negation of x. By and large the same rules carry over. In that case, (3) above asserts the commutativity of disjunction, or that *X or Y* is true if and only if *Y or X* is, and (6) the law of excluded middle, or that *either not-X or X* is true.

The Influence and Continuation of Boole's Work

Boole's mathematical approach and methodology for studying logic dominated the discipline in the second half of the twentieth century. Many of the most important writers on logic can be seen as elaborating upon and refining Boole's work, including Jevons

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(e.g., 1864), MacColl (e.g., 1880), Venn (1881), Schröder (1890–1905), Peirce (e.g., 1885) and Whitehead (1898). Jevons in particular was responsible for doing away with certain idiosyncracies in Boole's writings and bringing things in to line with what today we consider standard "Boolean algebra." For example, Boole considered a term of the form "$x+y$" as "uninterpretable" if the classes x and y overlapped, which, in the secondary interpretation, also meant that he bypassed the decision between inclusive and exclusive disjunction, as "$x+y$" would also be considered uninterpretable when both are true. Jevons read "+" instead as the modern union operation, or as inclusive disjunction in the secondary interpretation, and adopted the law that $x+x=x$. Boole's curious use of the sign "v" was rendered unnecessary by representing particular statements instead as *inequalities*:

$$\begin{array}{lcll} \text{I} & : & \text{Some } X \text{ are } Y & : \quad xy \neq 0 \\ \text{O} & : & \text{Some } X \text{ are not } Y & : \quad x(1-y) \neq 0 \end{array}$$

They similarly did away with the assumption that variables x, y, etc., must represent non-empty classes, thereby replacing the traditional square of opposition with the modern square instead. They also clarified the notion of "logical division" (inverse of multiplication), which Boole employed without adequately explaining. With these changes made, the result is more or less the form of Boolean algebra usually recognized and employed today, which was finally axiomatized in the early twentieth century (Huntington 1904). (However, something closer to Boole's original approach was eventually brought up to contemporary standards of rigor in Hailperin 1976.)

Working within the same tradition, Schröder, De Morgan and Peirce all made attempts to incorporate something like a logic of relations within the Boolean framework, and by means of the notions of bounded (logical) addition and multiplication, Peirce (1885) created something very similar to modern quantification theory, only slightly after Frege's independent advance. The logical notation of Giuseppe Peano (e.g., 1894), although it used different symbols, self-consciously emulated Boole's "dual interpretation" model, and many of his symbols are still used today in symbolic logic, primarily because of Peano's influence on Russell and Whitehead's *Principia Mathematica*.

Boole's influence has also been great outside the purely academic study of logic. The simplicity of the Boolean understanding of logical operations inspired the creation of mechanical devices capable of performing logical calculations. Jevons himself constructed such a machine in 1869 (see Jevons 1870), and interest in electrical implementations of the same idea soon grew. Although these were not successfully built until well into the twentieth century, such "logic circuits" are now a key concept in electrical engineering and an essential component of computers and similar devices. The theoretical understanding of such circuits has been important in the development of twentieth century information theory (see, e.g., Shannon 1948). In typed programming languages, variables representing truth or falsity are standardly said to be of the "Boolean" data type.

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Frege's Career

Gottlob Frege was born in Wismar, Germany and spent most of his academic career teaching mathematics at the University of Jena. While a student at the University of Göttingen, Frege also took classes in philosophy, especially from the Neo-Kantian philosopher Hermann Lotze. The influence of Neo-Kantian philosophy can be seen in his anti-psychologism, his apriorism, his esteem for Leibniz, and his general distrust of philosophical naturalisms. He finished his doctoral dissertation in 1873 on planar geometry, under the guidance of Ernst Schering.

Although the Kantian influences on Frege's philosophy are unmistakeable, his principal lifelong intellectual project was to establish the un-Kantian thesis that the principles of arithmetic can be understood as analytically true. In particular, he held that they could be derived from a purely logical foundation, a position now known as *logicism* in the philosophy of mathematics. His first major work, *Begriffsschrift* (1879), laid out the core of his logical system. In that work, he also showed how the notion of *following in a series* could be analyzed purely logically, providing a logical basis for the principle of mathematical induction, which Kantians had long assumed required synthetic intuition to justify. His next major work was 1884's *Die Grundlagen der Arithmetik*. Prompted by the advice of his colleagues, therein Frege argued informally for his logical conception of numbers, and criticized rival views in the philosophy of mathematics. In the early 1890s, he published important articles outlining new developments in his views on meaning and philosophical logic, including his best known paper, "Über Sinn und Bedeutung" ("On Sense and Reference"), from 1892. These are perhaps best understood as prepatory studies for his magnum opus, *Grundgesetze der Arithmetik*, the first volume of which appeared in 1893. It was in this work Frege sought to provide complete demonstrations of the most important principles of arithmetic beginning only with logical axioms and inference rules. The first volume contained a part devoted to Frege's logical system, to which he now added a theory of extensions of concepts, or more broadly, value-ranges of functions. It also contained the beginning of his treatment of cardinal numbers, both finite and infinite. This treatment was completed in the second volume, published in 1902. The second volume also contained an unfinished treatment of the arithmetic of real numbers, built around the notion of magnitude, as well as polemical replies to alternative accounts, especially from the formalist school. Frege had planned to publish a third volume of *Grundgesetze*, which was to complete this treatment, and go on to more advanced arithmetic as well.

Unfortunately, while volume II was in the process of being printed in mid-1902, Frege was informed by Bertrand Russell that the theory of extensions added to the logic of volume I was inconsistent, leading to the antinomy now known as "Russell's paradox." Frege hastily prepared an appendix to the second volume discussing the problem and offering a tentative solution. Frege was in his own words, "thunderstruck" (Frege 1980, p. 132). He continued to do important work for a few more years, including his debate with David Hilbert (e.g., 1899) and followers over the proper philosophical understanding of axiomatic systems in mathematics, published between 1903 and 1906 as "Über die Grundlagen der Geometrie." However, he produced very little new work between 1906 and his retirement. After retiring, he published a series of important papers, including the influential paper on truth, "Der Gedanke" ("Thoughts"), in

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1918. These were likely new drafts of material dating back to the late 1890s which he had once considered including in a planned textbook on logic (cf. Frege 1979, pp. 126–151). In the final year of his life, he seems to have come to the conclusion that the logicist thesis that arithmetic reduced to logic was untenable, and began to reconsider a more Kantian foundation for arithmetic. However, only a few scant writings from this period exist, and none were published during his lifetime.

It appears that Frege was a shy and reserved man by nature. He was right-wing politically, and diaries and correspondence found since his death reveal that he was rather anti-semitic and even expressed admiration for the young Adolf Hitler. These revelations have disappointed many of us among his philosophical progeny. Despite his shy personality, Frege was a harsh polemicist. He acknowledged his debts to past philosophical thinkers only rarely, and even more seldomly to other mathematicians. These factors are likely among the reasons Frege's works were underappreciated during his lifetime. His technical logical writings received mostly negative reviews, and his *Grundlagen* was largely ignored by German academics. Frege himself bemoaned the poor reception of his work in a number of places, including the foreword to *Grundgesetze* (p. xi). After Russell dedicated an appendix to Frege's work in his 1903 *The Principles of Mathematics*, Frege began to receive significant attention within the English-speaking world. This tendency grew after Frege's death, especially once his most important writings were translated into English in the mid-twentieth century. Frege now is almost universally heralded as a significant philosopher and groundbreaking logician. He seems to have had some foreknowledge of his eventual success. When bequeathing his *Nachlaß* to his son, Alfred, Frege wrote, "I believe there are things here which will one day be prized much more highly than they are now. Take care that nothing gets lost." Alfred gave the papers to Heinrich Scholz of the University of Münster for safe-keeping, where unfortunately most were destroyed in a World War II bombing raid.

Frege's Logical Symbolism and His Criticisms of Boole's

Although it is difficult to imagine Frege's own work having been possible without the immense new interest in symbolic and mathematical approaches to logic spurred largely by Boole's efforts a quarter century earlier, Frege himself offered nothing but criticisms of the Boolean approach. While Frege did not single out Boole himself for attack on this score, Frege would no doubt have objected to Boole's characterization of logic as studying "the laws of thought," at least if this is interpreted to mean the laws of the ways in which people in fact infer or reason. Frege insisted that the laws of logic would remain the same even if in fact no one's reasoning ever accorded with them. Frege would allow that they are laws of thinking only in a *normative* or *prescriptive* sense. They tell us which chains of reasoning are truth-preserving, and hence which inferences can be *justified*, not which inferences are in fact routinely made.

In a pair of essays published only posthumously (Frege 1979, pp. 7–52), Frege compared his own logical language to Boole's logical calculus with an eye towards assessing which fared better in realizing Leibniz's vision of a "logically ideal language." His evaluation was that Boole's system failed in realizing the goals of a "*lingua characterica*" — a logically perspicuous language in which the meaning of each symbol is made fully

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precise — and only succeeded, and there imperfectly, in realizing a "*calculus ratiocinator*," or a calculus in which precise rules can be set forth to determine what does, and what does not, count as a legitimate inference. Frege found Boole's approach wanting for a variety of reasons. Firstly, it reused mathematical notation inconsistently with its standard usage, which would greatly hinder its ability to represent the logic behind proofs *in mathematics* fully and without ambiguity. Secondly, despite Boole's interest in this problem, it cannot easily capture statements of multiple generality, such as "*every* person loves *some* city," nor disambiguate between different possible readings of such sentences. Thirdly, like all earlier approaches to logic, Boole's work bifurcated the logic of "primary propositions" (categorical logic) and the logic of "secondary propositions" (propositional logic) into distinct interpretations of the algebra, and thus was incapable of representing complex inferences involving steps of both kinds together at once. Frege claimed that his own logical language, which he called "concept-script" (*Begriffsschrift*), did better on all these counts. He also suggested that his language relied on fewer primitive symbols, and fewer basic inference rules.

The logical system Frege developed is in many ways similar to contemporary second-order predicate logic, so much so that he is often credited as having invented predicate logic. Strictly speaking, however, the language Frege developed is a "function calculus." He claimed the function/argument analysis of mathematical terms was richer and more exact than the subject/predicate analysis found in traditional logic. Consider the mathematical expression "$5+7$." This expression stands for the value of the addition function for the arguments five and seven. Frege thought of a function expression as being in a certain sense "incomplete" or "gappy" in that it affords a place or places for its arguments to be written. Hence we can think of the sign for addition not merely as "+" but as "$(\ )+[\ ]$" or "$\xi+\zeta$," with the ξ and ζ here marking empty spots to be filled with arguments. In order to apply this kind of analysis to complex expressions more generally, Frege expanded the kinds of functional expressions he countenanced in his language to include those representing functions with arguments and values other than numbers. He understood *concepts* as a special kind of function. If the functor "$H(\xi)$" stands for the concept *being human*, and "s" stands for Socrates, then when the latter fills the argument spot of the former, we get the truth, "$H(s)$." Relations were understood as similar sorts of functions, only with multiple arguments; e.g., "$\xi \leq \zeta$" represents the relation of *being less-than-or-equal-to*.

In his early work (e.g., Frege 1879, Section 2), Frege leaves it a bit unclear what sorts of objects he takes the *values* of concepts and relations to be, speaking only of such things as "the circumstance that A" (e.g., the circumstance that Socrates is human). By the 1890s, however, once he had adopted the sense/reference distinction, he took their values to be one of the two special objects, the True, and the False, called "truth-values." Hence, we might have:

$$H(x)=\begin{cases}\text{the True}, & \text{if } x \text{ is human},\\ \text{the False}, & \text{otherwise.}\end{cases}$$

Just as "$5+7$" by itself is just a complex name of a number, "$H(s)$" by itself is simply a name of one of the truth-values, the True or the False. To transform a name of a

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truth-value into something that represents an actual judgment, or to actually make a genuine assertion, Frege begins the expression with the sign "⊢—." Thus:

$$\vdash H(s)$$

actually asserts that the concept $H(\xi)$ maps s to the True, or that Socrates is human. Frege calls the vertical line at the far left the "judgment stroke." If this is removed, leaving only the horizontal part, what remains, "— $H(s)$," is still only the name of a circumstance (earlier) or truth-value (later). This horizontal line was called the "content stroke," since it prefigures and is used to name the content which, once the judgment stroke is added, is asserted as true.

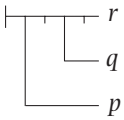
Frege's notation also made use of a "negation stroke" (somewhat analogous to the contemporary "¬" or "∼") and a "conditional stroke" (somewhat analogous to "→" or "⊃"). These were used in the language by marking or branching the horizontal line to which they were always attached. The two-dimensional nature of the conditional stroke, with the antecedent term written below the consequent, makes Frege's notation somewhat unique, but he himself suggested that using all the dimensions available on a page was an advantage of his style. We might put their semantics in Frege's mature work as follows:

$$— x = \begin{cases} \text{the True}, & \text{if } x \text{ is the True}, \\ \text{the False}, & \text{otherwise.} \end{cases} \qquad \text{(horizontal/content stroke)}$$

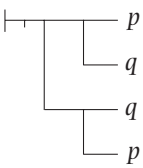
$$\text{—}\!\!\top x = \begin{cases} \text{the False}, & \text{if } x \text{ is the True}, \\ \text{the True}, & \text{otherwise.} \end{cases} \qquad \text{(negation stroke)}$$

$$\begin{array}{l} \top \\ \left.\begin{array}{l} y \\ x \end{array}\right. \end{array} = \begin{cases} \text{the False}, & \text{if } x \text{ is the True and} \\ & y \text{ is other than the True}, \\ \text{the True}, & \text{otherwise.} \end{cases} \qquad \text{(conditional stroke)}$$

By combining these symbols, more complex propositional forms, including disjunctions, conjunctions and the like, could be represented:



(analogue of $p \to \neg\,(q \to \neg\, r)$ or $p \to (q \wedge r)$)



(analogue of $\neg((p \to q) \to (q \to p))$ or $(p \to q) \vee (q \to p))$

Frege understood variables (or as he called them, "Roman letters") as expressing generalities. Just as the mathematical formula

$$f(x) = x^2 + 1$$

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can be taken to assert that function $f(\xi)$'s value is one more than the square of its argument for *every* possible argument, Frege would understand

$$\vdash M(x)$$
$$\quad H(x)$$

as asserting that it is true for *every* value of x that if it is human, then it is mortal (or that all humans are mortal). However, if the *scope* of the generality needed to be smaller than the entire proposition, Frege made use of Gothic (Fraktur) variables instead (always vowels), and marked the beginning of their scope with a concavity. This allowed him to distinguish between $\vdash \overset{\mathfrak{a}}{\smile} H(\mathfrak{a})$ ("not everything is human"or "$\neg\forall x\, Hx$") and $\vdash \overset{\mathfrak{a}}{\frown} H(\mathfrak{a})$ ("everything is not human" or "$\forall x \neg Hx$"). Frege was thereby the first to understand quantifiers as scoped variable-binding operators, and the instigator of modern quantification theory. This represents perhaps the most important advance in his logical work. Existential quantification could be captured using universal quantification and negation. Among other things, by using different variables with different possible scopes, he was able to capture statements of multiple generality and correctly disambiguate their different readings, e.g.:

$\vdash \overset{\mathfrak{a}}{\smile} \overset{\mathfrak{e}}{\frown} L(\mathfrak{a},\mathfrak{e})$ (every person loves some city *or other*)
$\quad C(\mathfrak{e})$
$\quad P(\mathfrak{a})$

$\vdash \overset{\mathfrak{e}}{\smile} \overset{\mathfrak{a}}{\frown} L(\mathfrak{a},\mathfrak{e})$ (every person loves some *one* city)
$\quad P(\mathfrak{a})$
$\quad C(\mathfrak{e})$

Frege understood quantifiers as *second-order* or *second-level* concepts. A first-order concept, such as $H(\xi)$ is understood as taking an object as argument and yielding a truth-value as value. A second-level concept takes a first-level concept (or other function) as argument instead, and also yields a truth-value as value. We have:

$$\overset{\mathfrak{a}}{\smile} \phi(\mathfrak{a}) = \begin{cases} \text{the True, if function } \phi(\xi) \text{ yields the True as value for all arguments,} \\ \text{the False, otherwise.} \end{cases}$$

Frege's logic was second-order, and so he also employed variables *f*, *F*, *g*, *G*, etc., for first-level functions (including concepts), as well as quantifiers, written, e.g., "$\overset{\mathfrak{f}}{\smile}$ …$\mathfrak{f}$…." Both early and late, Frege's logical language also contained a sign for identity, at first written "$\xi \equiv \zeta$" and later changed to the usual mathematical equality sign "$\xi = \zeta$."

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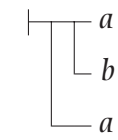
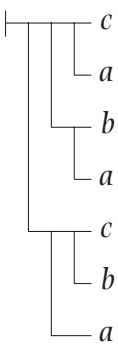
Frege's Logical Systems

While rival axiomatic systems for geometry (Euclidian, and non-Euclidian) were a subject of great intellectual curiosity in the nineteenth century, the logical basis of the demonstrations in them were typically taken for granted. They did not make what logical transformations they considered justified fully explicit. Frege hoped to remedy this in his logical language, and insist that proofs in it be "gapless," with every step made exact and precise so that no unnoticed assumption could sneak in. The result was the first rigorously axiomatized system of logic, where not only logical axioms were identified, but even the transformation and inference rules formulated exactly. The system of his 1879 *Begriffsschrift* contained nine axioms. Here I present each along with a contemporary near-equivalent and English gloss:



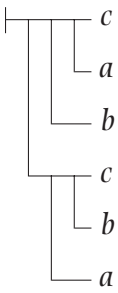
$p \rightarrow (q \rightarrow p)$ (A1)

If A then B (materially) implies A.



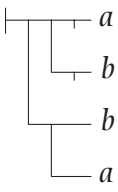
$[p \rightarrow (q \rightarrow r)] \rightarrow [(p \rightarrow q) \rightarrow (p \rightarrow r)]$ (A2)

If A implies that B implies C, then if A implies B, then A implies C.



$[p \rightarrow (q \rightarrow r)] \rightarrow [q \rightarrow (p \rightarrow r)]$ (A3)

If A implies that B implies C, then B implies that A implies C.



$(p \rightarrow q) \rightarrow (\neg q \rightarrow \neg p)$ (A4)

If A implies B, then not-B implies not-A.

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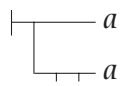
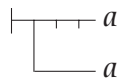
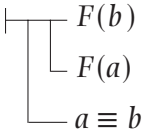

$\neg\neg p \rightarrow p$ (A5)

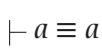
If not-not-A then A.

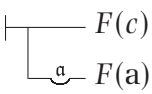

$p \rightarrow \neg\neg p$ (A6)

If A then not-not-A.


$x = y \rightarrow (F x \rightarrow F y)$ (A7)

If a is b then any concept holding of a also holds of b.


$x = x$ / a is a. (A8)


$(\forall x F x) \rightarrow F y$ (A9)

A concept holding of all objects holds of any particular object.

Frege also included versions of (A9) for higher-order quantifiers. The inference rules of the system were *modus ponens* or detachment, universal generalization, and an implicit rule of substitution or replacement for free variables (which became explicit in *Grundgesetze*). Together (A1)–(A6) provide a complete axiomatization of propositional logic, in the sense that every truth-functionally tautologous form can be derived from them, although (A3) was later shown to be redundant. With the other axioms, this system is a consistent and Henkin-complete axiomatization of second-order logic with identity. Henkin-completeness is weaker than standard completeness. It is now known as a corollary of Gödel's incompleteness results that no finite or recursive axiomatization of second-order logic with standard semantics can be complete in the sense of capturing all logical truths, where these are understood as statements true in all models in which the range of the second-order quantifiers includes concepts for all subsets of the domain of the first-order quantifiers. (The notion of a finite or recursive axiom system is explained more below.) Henkin completeness requires only capturing those logical truths that are true in all domains where there are enough concepts to satisfy the comprehension principle (discussed below; see Henkin 1955). This is as complete as any second-order logic can be expected to be. That Frege managed to devise one without any knowledge of later logical meta-theory is a remarkable accomplishment, especially given that this is the first work even to employ quantifiers in the modern sense. The publication of *Begriffsschrift* alone makes 1879 one of the most significant years in the history of logic.

Frege believed that the axioms of logic were analytic, and that hence, so too were the theorems, including the basic principles of mathematics derivable from them. Nonetheless, unlike Kant and his followers, he denied that this meant that logic was purely formal and incapable of extending our knowledge in any substantive way. Frege understood the constants of his logical language as standing for functions,

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including concepts and relations, no less real than the meaning of "… is human." Logic has as its subject matter those functions and relations which bear a special relation to truth, which Frege thought was the guiding concept for logic, just as goodness was the guiding concept for ethics, or beauty the guiding concept for aesthetics (Frege 1984, p. 325). What's more is that Frege believed that we could recognize the existence of new concepts, relations and logical functions by taking a complex expression and removing one or more names from it. Frege's replacement rule for free function variables allows the substitution of any open expression, which makes it equivalent to the modern (impredicative) comprehension principle. In contemporary notation, this reads as follows, where "… *x*…" is any open sentence containing "*x*" but not "*F* " free:

$$\exists F \forall x \left(Fx \leftrightarrow \ldots x \ldots \right)$$

Frege regarded this recognition of new concepts as the secret to the potential informativity of logic. Even when the axioms of logic are self-evident, and the inference rules obviously truth-preserving, the ability to recognize new concepts allows ampliative inference. As he put it, the true conclusions thereby reached are in one sense "contained within" the axioms, but only "as plants are contained in their seeds, not as beams are contained in a house" (Frege 1884, Section 88).

By the time of 1893's *Grundgesetze*, Frege had become convinced that logic provides us with knowledge not just of logical functions, concepts and relations, but through this means, also knowledge of certain logical objects with a special relationship to them. Mathematicians commonly speak of the "graph" of a function: for the *sine* function, it is a wave, for $x^2 + 2x + 1$, it is a parabola, etc. One of the words used by German mathematicians for a graph, "*Werthverlauf* " (translated as "value-range" or "course-of-values"), was adapted by Frege to speak of abstract objects which functions have in common when they have the same value for every argument, the same "graph," as it were, considered as an abstract object. In the case of concepts, i.e., functions from objects to truth-values, Frege identified their value-ranges with their *extensions*, as coextensive concepts yield the same truth-values for the same arguments in every case.

The logical system of his *Grundgesetze* differed from that of *Begriffsschrift* by using fewer axioms but more inference rules. The logical cores of the systems were very similar. However, Frege added two new primitives. The first was a notation consisting of a Greek vowel written with a smooth-breathing accent followed by a function expression into the argument places of which the vowel was inserted. Frege understood this as a second-level function mapping a first-level function to its value-range. Another functor was introduced to be used along with it:

$$\dot{\alpha}\phi(\alpha) = \text{the value-range of function } \phi(\xi).$$

$$\backslash x = \begin{cases} \text{the sole object falling under the concept,} & \text{if } x \text{ is the value range of a concept under which only one object falls,} \\ x \text{ itself,} & \text{otherwise.} \end{cases}$$

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Frege dubbed the second functor as "the substitute for the definite article," as under the appropriate circumstances, "$\backepsilon\dot{\alpha}F(\alpha)$" might be read "the F." Frege added the following axioms:

$$\vdash (\dot{\epsilon}\, f(\epsilon) = \dot{\alpha}\, g(\alpha)) = (\overset{\mathfrak{a}}{\frown\!\!\!-\!\!\!-} f(\mathfrak{a}) = g(\mathfrak{a})) \qquad \text{(Basic Law V)}$$

$$\vdash a = \backepsilon\dot{\epsilon}(a = \epsilon) \qquad \text{(Basic Law VI)}$$

The second, harmless, principle here asserts that a is *the* thing identical with a. Basic Law V, however, is not so innocuous, and has come to be a focal point in discussions of Frege's logic. It asserts that the truth-value of f and g having the same value-range is the same as the truth-value of f and g having the same value for every argument. Given what Frege understands value-ranges to be, this seems straightforward. In contemporary discussions, where the usual term/formula distinction is observed, using the set-theoretic notation $\{x \mid Fx\}$ for the extension of F, something similar to Frege's law might be put:

$$\forall F \forall G\Big[\{x \mid Fx\} = \{x \mid Gx\} \leftrightarrow \forall x\big(Fx \leftrightarrow Gx\big)\Big] \qquad \big(\text{BLV} - \text{modern}\big)$$

This asserts that F and G have the same extension just in case they are coextensive, which too seems self-evident.

Despite this, however, the presence of Basic Law V in a system in which the impredicative comprehension principle holds leads to inconsistency due to the contradiction from Russell's paradox. Extensions (and value-ranges generally) are objects, so some of them fall under the concepts of which they are the extensions, and some do not. The extension of the concept *extension* falls under its defining concept, whereas the extension of the concept *cat* is not a cat, and hence does not. Consider then the concept *extension that does not fall under its defining concept*. This concept has an extension, but does it fall under that very concept? It does just in case it does not. Let us use $W(\xi)$ to abbreviate:

$$\overset{\mathfrak{f}}{\frown\!\!\!-\!\!\!-} f(\xi) \qquad \text{(in contemporary notation } \exists F(\xi = \{x \mid F\, x\} \wedge \neg F(\xi)))$$
$$\quad\ \llcorner\, \xi = \dot{\epsilon}\mathfrak{f}(\epsilon)$$

An object falls under $W(\xi)$ just in case it does not fall under every concept of which it is the extension, or equivalently, just in case there is some concept of which it is the extension it does not fall under. This concept has an extension $\dot{\alpha}W(\alpha)$. Does it fall under W? Suppose it does. Then there is a concept F of which it is the extension such that it is not true that it falls under F. Since $\dot{\epsilon}F(\epsilon) = \dot{\alpha}W(\alpha)$, by Basic Law V, F and W are coextensive, and so $\dot{\alpha}W(\alpha)$ does not fall under W. Since assuming it does leads to the conclusion that it does not, $\dot{\alpha}W(\alpha)$ must not fall under W. But then it must in fact fall under every concept of which it is the extension, including W itself, and so we again arrive at the opposite result. Contradiction. In classical logic, everything can be proven from a contradiction, and so while it is possible to derive the basic principles of mathematics within Frege's *Grundgesetze* system, it is also possible to derive the negations of those very results: clearly a disaster.

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After learning of the contradiction from Russell, Frege's own diagnosis was that Basic Law V was faulty. While many agree, it is also possible to blame the contradiction on impredicative comprehension. Notice that $W(\xi)$ above is defined using a second-order quantifier. If such quantifiers are not allowed within substituends for the f and g variables in Basic Law V, no contradiction results. Consistent fragments of Frege's system relying on weaker comprehension principles have been studied (Wehmeier 2004). Nonetheless, if Basic Law V is removed, and impredicative comprehension remains, one is again left with a consistent and Henkin-complete axiomatization of second-order logic. However, as such, the resulting system is too weak to derive the basic principles of arithmetic as Frege conceived them. Therefore, in the appendix dedicated to the problem in the 1902 second volume of *Grundgesetze*, Frege suggested using a weaker version of Basic Law V instead. The weaker version was later also shown to be flawed (Quine 1955; Landini 2006). It is not known whether or not Frege himself ever discovered the flaw in the revision, but in any case, the proposed third volume of *Grundgesetze* never appeared.

Frege's Philosophy of Mathematics

Although he is rightly best remembered for his positive arguments in favor of logicism, Frege also presented powerful and influential arguments against rival views. He soundly rejected psychologistic positions in both logic and mathematics. Numbers cannot be equated with mental images. Logical and mathematical truths are objective, and hence not dependent on the subjective states of any mind (Frege 1884, Section 26; 1893–1902, pp. xviii–xxv). Both Mill's view that arithmetic consists of empirical truths based on observation as well as the Kantian view that arithmetic is grounded in the forms of experience (pure intuitions of space or time) were also dismissed as inadequate. Such positions cannot make sense, for example, of our knowledge of zero, as we have never had an experience of zero things, nor is there even the form of such an experience. These positions also fare poorly for large numbers, which are not sharply distinguished from small numbers, nor uniquely encountered in actual experience. He reserved his harshest criticisms for the formalist view that arithmetic can be understood as the study of uninterpreted formal systems, as advanced by figures such as Heine (1872), Frege's Jena colleague Thomae (1880), and later, David Hilbert (1899). At its worst, he thought formalism was guilty of conflating symbols with what they mean, so that, for example, "5 + 7 = 12" in Arabic numerals would be considered a different truth from "V + VII = XII" in Roman numerals (Frege 1893–1902, Section 100). At best, formalism involved a confusion of concepts and objects. By laying out a mathematical theory as a formal system, and suggesting that its subject matter is implicitly defined by the axioms of the system, one is merely defining a *concept* ("object satisfying the axioms" or similar). One, many, or even no, conglomerations of objects might fall under these concepts (Frege 1884, Section 97; 1984, pp. 120–121). If the system of axioms is not given a specific interpretation, it has no specific content, and expresses no actual thoughts, true or false.

Frege put special emphasis on certain precepts as important when considering the nature of abstract objects such as numbers. One is his famous "context principle":

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"never…ask for the meaning of a word in isolation, but only in the context of a proposition" (Frege 1884, p. x). Frege thought the best way to understand what number words mean, i.e., what numbers *are*, is to think about the truth-conditions of complete statements in which these words appear. He made special note that ascriptions of (cardinal) numbers in everyday use require the mentioning of a concept, or type of thing, being counted. Numbers cannot be ascribed to physical complexes outright: the same physical aggregate could be described either as *one* deck of playing cards, *fifty two* cards, *four* bridge hands, or as *goodness-knows-how-many* atoms. He accuses rival views about the nature of number as ignoring this fact. A sentence such as "Jupiter has 67 moons" seems to say how many times the concept *moon of Jupiter* is instantiated. In his *Grundlagen* he reaches the conclusion that *an ascription of number contains a assertion about a concept*, and insists strenuously that any adequate account of numbers must do justice to this.

Frege considered the view that numbers simply *are* second-order concepts, or concepts applicable to concepts. On this approach, zero would simply be the quantifier *nothing is…*, and one would be the concept applicable to concepts instantiated uniquely, and so on. Frege rejected this view on the grounds that it provides no interpretation of a numeral such as "3" by itself, but only of such phrases as "there are three φs." We would not be able to speak of numbers on their own, or make sense of such questions as to whether or not two numbers are the same, or whether or not the number 3 is identical with Julius Caesar. According to Frege's division of functions and objects, numerals as used in arithmetic have the syntax appropriate to name objects. Frege concludes that numbers must be objects. Nonetheless, we must consider the meaningfulness of number words in the context of propositions, which leads Frege to consider the truth-conditions of identity statements between numbers. Bearing in mind the connection between number ascriptions and concepts, and taking a cue from a passage in Hume, Frege makes note of the following principle — now commonly called *Hume's Principle* — governing numerical identity:

> The number of *Fs* = The number of *Gs* if and only if the *Fs* and the *Gs* can be put in 1–1 correspondence with each other. (HP)

The notion of 1–1 correspondence can be defined purely logically in second-order logic. It means that there is a relation that pairs up each F with exactly one G, and each G is paired up with exactly one F.In contemporary notation this can be put thus:

$$F(x) \cong_x G(x) =_{\text{df}} \exists R\Big(\forall x\big(Fx \rightarrow \exists y\big(Gy \wedge Rxy\big)\big) \wedge \forall y\big(Gy \rightarrow \exists x\big(Fx \wedge Rxy\big)\big) \wedge \forall x \forall y \forall z \forall w\big(Fxy \wedge Fzw \rightarrow (x = z \leftrightarrow y = w)\big)\Big)$$

Using "$\#x : F\,x$" for "the number of x such that $F\,x$," we might restate Hume's Principle as follows:

$$\#x : Fx = \#y : Gy \leftrightarrow F(x) \cong_x G(x) \qquad (\text{HP}')$$

Hume's principle takes the form of an *abstraction principle*. It introduces a functor, in this case the second-level functor "$\#x : \varphi x$," by specifying under what conditions the values

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the function it represents yields are the same by citing a certain equivalence relation (symmetric, transitive and reflexive relation) holding between the arguments. Numbers applicable to concepts are the same when they are equinumerous: i.e., stand in 1–1 correspondence with each other. It should be noted that Frege's infamous Basic Law V also takes the form of an abstraction principle: value-ranges of functions are the same when those functions have the same value for every argument. Abstraction principles have been a subject of interest among mathematicians at least since Leibniz, and were also widely discussed by other nineteenth century figures including Grassmann and Peano, some of whom saw them as a kind of implicit definition. Frege considered the possibility that Hume's Principle might be considered as a kind of definition of cardinal numbers.

In the end, Frege rejected this suggestion. (HP′) does not provide an explicit definition of the notation "$\#x : Fx$," nor allow us to resolve it into primitive logical notation. It only fixes the truth conditions for *some* identity statements about numbers, not all. It does not tell us under what conditions "$\#x : F\,x = q$" is true if "q" is not given in the form "$\#y : Gy$." So again, we cannot tell whether or not a number is identical with Julius Caesar. Yet, Frege did hold that Hume's Principle showed a way forward. Any correct definition of cardinal numbers must yield Hume's Principle as an analytic result. As we have seen, the mature Frege believed that logic could provide knowledge of certain logical objects: extensions of concepts most notably. In the *Grundlagen*, he therefore suggests defining "the number of *F*s" as the extension of the concept *concept equinumerous with F*. Since equinumerosity is an equivalence relation, it would then follow that concepts *F* and *G* would have the same number just in case they were equinumerous, validating Hume's Principle. In the *Grundgesetze*, Frege allows the extensions of concepts to take over the role of concepts as the members of such extensions. (It is unclear how substantive this change is; see Klement 2012.) Frege then defined a function $\mathfrak{P}(\xi)$, which, when applied to the extension of a concept *F*, would yield the extension of the concept *extension of a concept equinumerous with F*, and hence, $\mathfrak{P}\,(\dot{\alpha}F\,(\alpha))$ became his version of "$\#x : F\,x$." If we take Frege's talk of "extensions" as interchangeable with talk of "classes," then this definition makes numbers out to be classes of classes all of which have the same cardinality. After this definition was independently rediscovered by Russell, it has come to be known as the Frege-Russell definition of number. Using it, Frege was able to derive his version of Hume's Principle as a theorem from Basic Law V. Unfortunately, however, this wedded his theory of numbers to his (inconsistent) theory of extensions.

In his *Grundlagen*, Frege sketched informally how much of the core vocabulary of arithmetic could be defined logically, and how many of the basic principles — including a set of results equivalent to the Peano-Dedekind axioms for number theory — could be proven. Complete demonstrations of these principles were given in *Grundgesetze*. Roughly, 0 (zero) can be defined as the number of the null concept, *non-self-identity*, $\mathfrak{P}\dot{\alpha} \neg\vdash (\alpha = \alpha)$. The successor function could be defined as yielding, for a given number *n*, the class of all extensions of concepts *F* such that for some *x* such that $F(x)$, the number belonging to the concept *being an F which is not x* is *n*. Speaking instead of classes, this will yield the class of all classes having one more member than the members of *n*. Using the logical notion of series introduced already in the *Begriffsschrift*, the concept of *natural number* could be defined as the class of all *z* in the series generated by the successor

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relationship starting with 0, or the class of all z falling under every concept held by 0 and always held by the successor of any n of which it holds. Importantly, Frege is able to prove that every natural number is non-empty by noting that for every natural number n, the subseries of natural numbers up to and including n has $n+1$ members. There is one number up to and including 0, two numbers up to and including 1 (0 and 1), three numbers up to including 2, and so on. Frege thereby established that there are infinitely many natural numbers, a key step to obtaining results equivalent to the Peano-Dedekind axioms. Frege went beyond the arithmetic of finite numbers, pointing out that some concepts, including the concept *natural number* itself, apply to infinitely many things, and hence that there are infinite cardinals. As noted, he began to outline a treatment for real numbers as well before it was derailed by Russell's paradox.

In light of its inconsistency, Frege's logicist project cannot be considered an unqualified success, as he himself admitted. Yet, many key aspects of Frege's mathematical logic could perhaps be salvaged, and there have been many in the twentieth century who have attempted revisions, some of whom took themselves to be advancing their own form of logicism, others of whom took themselves to be offering a non-logicist but otherwise quasi-Fregean framework. For example, Whitehead and Russell offered a ramified theory of types (Whitehead and Russell 1910–1914), and later, Ramsey offered a simpler theory of types (Ramsey 1925), which solved the logical paradoxes. Type theory, when combined with Russell's "no class" theory, applies something similar to Frege's hierarchy of levels (discussed below) to discourse about classes. It is then not possible to ask whether or not a class is a member of itself, only whether or not it is a member of a higher-type class. However, such systems require some non-obviously-logical principles such as an axiom of infinity to recover Peano arithmetic in its usual form. Quine (1937) offered us a Frege-inspired weaker, but still non-well-founded, theory of classes sufficient for arithmetic, though its consistency is still unproven. Boolos (1986) takes up Frege's suggestion from the Appendix to *Grundgesetze*, and offers a different, but consistent, modification of Basic Law V, called "New V." Recently a lot of attention has been paid to the fact that Frege's proofs of his equivalents to the Peano-Dedekind axioms only make essential use of Basic Law V in proving Hume's Principle, and that, once it is established, it plays the important role in the proofs. If notation such as "$\#x : F\,x$" is taken as primitive, then (HP′) by itself as the sole addition to the usual axioms of second-order logic suffices for a consistent recapturing of all of Peano arithmetic. This result has been called "Frege's theorem," and many regard it as one of Frege's chief contributions to the foundations of mathematics. Indeed, Crispin Wright and Bob Hale (Wright 1983; Hale and Wright 2001) have advocated an "abstractionist" or "neo-Fregean" position that advocates postulating (HP′) and similar principles as analytic truths suitable for a kind of logicist treatment of mathematics, whether or not they are derivable from anything like set or class theory.

Another cause for concern for Frege's project came when Kurt Gödel (1931) proved that no finite or recursively axiomatizable system for mathematics that is expressively adequate to represent all recursive functions, can be both consistent and complete. Any such systems will be able to express mathematical truths not provable from the axioms. A recursively axiomatizable system is one in which there is a recursive procedure, or equivalently, a Turing-machine computable procedure, for determining what does and what does not count as a legitimate deduction in that system. One could add axioms to

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a system for mathematics, but if only a finite number are added, or even a recursively decidable infinite number, there will still be unprovable truths. Only an inconsistent system, or one in which there is no recursive or Turing-machine computable algorithm for separating out good from bad deductions, can possibly provide a complete axiomatization of arithmetic. The extent to which this undermines Frege's logicist thesis depends greatly on how strong that thesis is taken to be. While it may be that no single recursive logical calculus suffices to derive all of mathematics, this does not obviously show that any portion of arithmetic is non-logical or non-analytic. Indeed, if Frege had been successful in providing a logical basis for all of standard Peano arithmetic — which encompasses nearly all the mathematics the average person learns in his or her lifetime — it would seem odd to suggest that mathematics as a whole has a non-logical metaphysical or epistemological foundation despite the fact that this portion does not. Nonetheless, Gödel's results surely complicate arguments in favor of logicism.

Frege on Objects and the Hierarchy of Concepts

We have seen that Frege modeled the syntax of his logical notation on the function/argument analysis of complex mathematical expressions. He believed that, despite certain complications, the same kind of segmentation could be applied to ordinary language. The phrase "the capital of Sweden" could be divided into a function expression "the capital of ξ" and a phrase for its argument, "Sweden." The proposition "Jupiter is larger than Mars" can be divided into function and argument in multiple ways, e.g., into the name "Jupiter" and the concept expression "ξ is larger than Mars," or into the name "Mars" and the distinct concept expression, "Jupiter is larger than ζ," or into the two names "Jupiter," "Mars" and the relational expression, "ξ is larger than ζ." The hallmark of a function expression is its having a spot (or spots) ready to receive the expression for its argument(s). The hallmark of the name of an object — including complete sentences which Frege understood as names of truth-values, only with added assertoric force (the natural language substitute for his judgment stroke) — lies in its lack of any such gap or incompleteness. Frege believed that this syntactic distinction reflected a real difference between the things the different expressions stood for. Not only are concept expressions gappy, but concepts themselves are *unsaturated* or have a *predicative nature*. In contrast, objects are self-subsistent or complete. It is the unsaturated nature of concepts that makes them suitable to be the references of concept expressions, and the saturated nature of objects that makes them suitable to be the references of names. In any complex expression, at least one phrase must represent a function: a series of names by itself cannot form a coherent whole. Complete names can only refer to objects, and incomplete expressions can only refer to concepts or other functions.

Frege also believed that functions differed depending on the nature of their arguments, forming a hierarchy. A monadic first-level function, such as $H(\xi)$, has a single argument spot which must be completed by an object. A polyadic or relational first-level function would have multiple arguments, e.g., $R(\xi, \zeta)$, but it would still take objects as argument. A monadic second-level function would be a function whose argument is a first-level function. A second-level concept is a second-level function whose value is always a truth-value, such as the quantifier $\text{—}\breve{\mathfrak{a}}\text{—}\,\phi(\mathfrak{a})$. For Frege, the difference between

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first- and second-level functions is just as thoroughgoing as the difference between first-level functions and objects. A second-level concept cannot be predicated of an object or another second-level function. This is shown by the fact that the gap in the expression "$\_\!\smile\!\mathfrak{a}\!\smile\!\_\ \phi(\mathfrak{a})$" must be replaced by something itself gappy, so that it has a place to receive the bound object variable "$\mathfrak{a}$", but only a sign for a first-level function has the right form. When they come together, the first- and second-level functions "mutually saturate." A third-level function would be a function taking a second-level function as argument. Consider the higher-order quantifier $\_\!\smile\!\dot{f}\!\smile\!\_\ \mu_\beta\ (\mathfrak{f}(\beta))$. Its argument spot is represented by the portion $\mu_\beta(\ldots\beta\ldots)$. Only a symbol such as "$\_\!\smile\!\mathfrak{a}\!\smile\!\_\ \ldots\mathfrak{a}\ldots$" can fit here, because by means of its bound variable, it could complete the argument spot of the variable bound by the higher-order quantifier, in this case resulting in $\_\!\smile\!\dot{f}\!\smile\!\_\!\smile\!\mathfrak{a}\!\smile\!\_\ \mathfrak{f}(\mathfrak{a})$.

Frege maintained that conflating concepts and objects, or functions of various levels, was a frequent source of confusion. We have already seen that he criticized certain formalist positions on such grounds. For Frege, the fundamental meaning of existence is given by the existential quantifier $\vdash\!\smile\!\mathfrak{a}\!\smile\!\vdash\ \phi(\mathfrak{a})$, which is a second-level concept, not a first-level one, giving a concrete interpretation to the Kantian dictum that "existence is not a predicate." Frege diagnosed the problem with the ontological argument for the existence of God as wrongly treating existence as a first-level concept. This quantificational account of existence was taken up in the twentieth century by Russell (e.g., 1905) and Quine (1948), and represents the main alternative to the position found in the works of Alexius Meinong (e.g., 1899), which admits both objects which have and which lack existence.

This view is not without its difficulties or puzzles. Pressed by Benno Kerry (1887), for example, Frege was compelled to admit that the phrase "the concept *horse*," since it has no gap for an argument, cannot refer to a concept. Frege concluded that there is a special object for every concept (or other function) which goes proxy for it when such locutions are used. "The concept *horse*" refers to an object, not a concept. But then can Frege even coherently state the distinction without violating his own principles? Consider the predicate "… is an object." If it stands for a first-level concept, it is true of all arguments; if something else, then it is true of none. Is it meaningful, by Frege's own lights, then, to speak of a distinction between concepts and objects, or postulate entities which are not objects? Frege admits the difficulty, claiming that the very nature of the distinction forces him to speak imprecisely, adding that he hoped readers "would meet me halfway" and "not bedrudge of pinch of salt" (Frege 1984, p. 193). This puzzle is sometimes thought to prefigure the discussion of "ineffable truths" in Wittgenstein's *Tractatus*, i.e., those that can only be "shown" not "said."

Frege on Meaning and Truth

A perhaps even more influential distinction made by Frege is that between the sense (*Sinn*) and reference (*Bedeutung*) of expressions. Frege introduced this distinction in his mature work to resolve what he considered a puzzle about identity. Consider:

$$\text{the morning star} = \text{the morning star} \tag{8}$$

$$\text{the morning star} = \text{the evening star} \tag{9}$$

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These are both true, but (8) seems *trivial* in a way that (9) does not. However, the expressions flanking "=" in (9) have the same content, both with each other and with the corresponding parts of (8). So what accounts for the difference in cognitive significance? In his early work, when he employed the sign "≡" for "identity of content", he assumed it must be understood not as a genuine relation between objects, but rather as a relation between expressions. It must always be trivial to be told that a thing is itself, but it could be informative to be told two expressions have the same content (Frege 1879, Section 8). However, in his mature work, he realizes that (9) must be understood as informing us something *about* the morning star itself, not merely about language. He therefore bifurcates his earlier notion of content into the notions of sense and reference. The reference is the actual object a name stands for. "The morning star" and "the evening star" have the same reference: the planet Venus. The sense of an expression is its "mode of presentation," or the way in which the reference is picked out. The expressions "the morning star" and "the evening star" differ in sense because they pick out Venus in virtue of different properties it has. (8) and (9) differ in sense, which explains their difference in cognitive significance.

Frege puts this distinction to a variety of uses. In earlier work, he had worried that in a mathematical equation such as "$5 + 7 = 4 \times 3$" the two sides cannot in all ways be considered "the same": one is a sum, the other a product, etc. Once adopting the sense-reference distinction, however, he saw no reason to differentiate between mathematical equality and identity. The distinction also made it possible for him to regard concepts and relations as functions with truth-values as values. In his mature logic, all true propositions consist of the judgment stroke preceding a name of the True. Obviously, it would be absurd to hold that all true propositions have the same meaning, full stop. Frege now held that although the references of all true (and of all false) propositions are alike, they differ in the senses they express, which he called *thoughts*. Although Frege considered it as a defect of ordinary language to be avoided in a logically rigorous language, Frege thought some expressions expressed a sense but nonetheless lacked a reference, such as in fiction, e.g., "Odysseus" or "Sherlock Holmes," or even in mathematics and science, e.g., "the least rapidly converging series." Because these expressions lack reference, so do any propositions in which they appear. Since Frege regards the reference of a complete proposition to be its truth-value, this would mean that such sentences as "Sherlock Holmes lived at 221B Baker Street in London" are neither true nor false.

Lastly, Frege used the distinction to account for why it is not always possible to substitute apparently co-referring expressions in a sentence while preserving the truth-value. Consider:

Ptolemy believes the morning star = the morning star (10)

Ptolemy believes the morning star = the evening star (11)

These differ from each other only by the substitution of one term referring to Venus for another. Since Frege thinks that the reference of an expression is a function of the references of its parts, it is difficult to see how (10) could differ in truth-value from (11). But clearly this is at least possible. Frege's solution is to insist that in certain contexts,

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such as in what we now call "propositional attitude reports" (beliefs, desires), words shift from having the usual or "direct" references to having their "indirect" references, which are their customary senses. Since (8) and (9) have different senses, when they are embedded in the underlined contexts in (10) and (11), they refer to different thoughts. Belief is a relation between a believer and a thought, not a believer and a truth-value. It is possible for Ptolemy to believe one thought and not the other. To be substitutable in such "indirect" contexts, words would have to share not only their customary references, but their customary senses as well. Frege's writing on this subject marks the starting point for most contemporary discussion in analytic philosophy about identity puzzles and the logic of propositional attitude reports (e.g., Salmon 1986).

Frege does not tell us much about the precise nature of senses. Some passages suggest that he thinks of a sense as containing a property or set of descriptive information, and the reference is the object which uniquely satisfies that property, if there is one. (This reading is presupposed, e.g., in Kripke 1980.) It is unclear, however, if this account covers all senses. Frege seems to think that each person can think about him or herself in a unique way, using a unique sense not fully graspable by others. This prefigures the contemporary discussion of the unique nature of *de se*, or self-directed, mental attitudes (Perry 1977). Frege applies the distinction also to other kinds of expressions, such as those for functions and concepts of different levels. Frege considers the identity relation to be a first-level relation that can only hold between objects. However, in posthumously published remarks (Frege 1979, pp. 118–25), he suggests that there is an analogous relation of "coinciding" which holds between functions that have the same value for every argument. Coextensive concepts such as ξ *has a heart* and ξ *has a kidney* would coincide, since they would map all the same objects to the same truth-values. Clearly, however, the phrases "ξ has a heart" and "ξ has a kidney" are not synonymous in *every* respect. Frege concludes that these too differ in sense, but not reference, noting that his sense/reference distinction plays a role similar to the more traditional distinction between the intension and the extension of a predicate. Frege regards the sense of a complete proposition as in some metaphorical way a complex or whole containing the senses of the parts. Thoughts have a kind of *unity* to them provided by the senses of the function expressions, which Frege too regards as unsaturated or incomplete. Exactly how the "unsaturatedness" of these senses is to be understood, and whether or not it differs from the kind of unsaturatedness that the functions that are their references have is a thorny issue (see e.g., Klement 2002, chap. 3).

Frege's contention that the reference of a proposition is its truth-value strikes many as idiosyncratic. Frege gave two sorts of reasons for it. The first involves a kind of parity of interests. We seem to be interested in or concerned with whether or not the subexpressions of a proposition have reference in precisely those situations in which we are concerned with their truth. If a story is told for fun, we are indifferent about whether or not the character names actually refer. However, when investigating the truth of a historical legend, it will matter to us whether or not the names refer to actual historical figures. The other reason, less emphasized by Frege but subsequently more influential, is based on his assumption that the reference of the whole must be determined by the references of the parts. He asks, rhetorically, "what feature except the truth-value can be found that…remains unchanged by substitutions" in which "a part of the proposition is replaced by an expression with the same reference" (Frege 1984, p. 164)? A more

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fleshed-out argument was later given by Alonzo Church (1956, p. 25). If we assume that the reference of the whole is unchanged both by such substitutions and by relatively innocuous-seeming modifications to grammatical form, then all the propositions in the following series would seem to have the same reference:

Sir Walter Scott is the author of Waverly.
Sir Walter Scott is the writer of twenty nine Waverly novels.
The number of Waverly novels written by Sir Walter Scott is twenty nine.
The number of counties in Utah is twenty nine.

However, the last seems to have nothing interesting in common with the first apart from its truth-value, confirming Frege's suggestion that only the truth-value could be the reference. This argument has come to be called "the Frege-Church slingshot."

Thoughts, the senses of propositions, are the bearers of truth. However, Frege argues that the relationship of a thought to its truth-value must be understood as one of sense and reference, not of a thing and its attribute. Frege points out that "it is true that…" adds nothing to the sense of a proposition it is applied to, and so truth cannot be a genuine property. Frege argues against the possibility of defining truth in a non-circular way. Truth cannot be correspondence in a strong sense, as nothing completely corresponds with anything except itself. If truth relies on a weaker, or partial, notion of correspondence in a certain respect, we would be led back to the question as to whether or not it was *true* that there was such a correspondence, creating a vicious regress. Frege thinks the same reasoning undermines any other way of defining truth. Rather, Frege thinks that the activity of forming judgments and making logical inferences indirectly reveals what truth is: "the meaning of the word *true* is spelled out in the laws of truth," i.e., the laws of logic (Frege 1984, p. 352). Frege claims that thoughts are timeless, objective abstract entities existing in a "third realm" distinct from both the physical, concrete world, and the subjective realm of ideas. Thoughts must be finer grained than the entities they are about, and so cannot be made up of these entities. He remarks, "Mont Blanc with its masses of snow and ice is no part of the thought that Mont Blanc is over 4000 m high" (Frege 1980, p. 187). Moreover, unlike ideas, thoughts are not private to the individual. They can be shared. Thoughts and their relationship to truth and falsity are not created by our acts of thinking nor destroyed by their cessation. Although thoughts affect the physical world only through acts of cognition, one must not conflate the act of thinking with its content, the thought.

Analytic Philosophy and the Impact of the New Logic

Analytic philosophy has been perhaps the most successful philosophical movement of the twentieth century. While there is no one doctrine that defines it, one of the most salient features of analytic philosophy is its reliance on contemporary logic, the logic that had its origin in the works of Boole and Frege and others in the mid-to-late nineteenth century. The works of many key figures in the movement are only fully intelligible when taken together with their works on formal logic. Kripke's and Marcus's views on names and essence must be considered in relation to their work on modal

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logic, David Lewis's modal realism in relation to his counterpart theory, David Kaplan's theories of language in relation to his logic of demonstratives, and the list goes on.

Analytic philosophy is sometimes also called "Anglo-American philosophy." The label is misleading given both the many contributions from Continental Europeans, and the spread of the movement to many other parts of the globe. However, no one did more to promote the "new logic" in the philosophical communities of the English-speaking world than Bertrand Russell. Along with his Cambridge colleague, G.E. Moore, Russell had broken from the idealistic monism prevalent in late-nineteenth century Britain such as found in the writings of F.H. Bradley (see e.g., Hylton 1990). Although he already respected Boole, Russell first appreciated the philosophical significance of the "new logic" when he met Peano at the International Congress of Philosophy in 1900. Peano's symbolism was based largely on Boole's, but with certain changes more in line with Frege's approach. Russell found that Peano's logic made possible a new mode of philosophical analysis (see Levine 2016), and put the final pieces in place for him to complete his ongoing research on the foundations of mathematics. Russell independently came to hold an even stronger form of logicism than Frege's. He only read Frege closely when *The Principles of Mathematics* was near completion in 1902, though he immediately recognized the greater importance and profundity of Frege's approach to logic. Despite discovering the inconsistency in the *Grundgesetze* system, he expressed nothing but effusive praise and respect for Frege from then on. Russell once wrote, "when I think about acts of integrity and grace, I realise that there is nothing in my knowledge to compare with Frege's dedication to truth" (quoted in van Heijenoort 1967, p. 127). Russell's championship of modern logic in something like the Fregean form has had an effect on the history of philosophy the full extent of which we cannot yet fully gauge.

Austrian thinker Ludwig Wittgenstein was led away from engineering towards philosophy when he discovered Russell's *The Principles of Mathematics* while an engineering student at the University of Manchester. He was particularly interested in the appendix on Frege, and the discussion of Russell's paradox. In 1911, he went to speak with Frege in Jena about a possible solution. Wittgenstein later recalled that Frege "wiped the floor" with him in their discussion (see Drury 1984, p. 110), but nonetheless Frege recommended that Wittgenstein go to Cambridge to study with Russell, which he did. Frege and Wittgenstein corresponded and had a few additional meetings. In the preface to his enormously influential *Tractatus Logico-Philosophicus*, Wittgenstein singles out only Russell and "the great works of Frege" as stimulation for his thoughts.

The *Tractatus* and its account of logical truth was influential on another group of thinkers formed around Moritz Schlick in the 1920s, the so-called "Vienna Circle," proponents of logical positivism. Perhaps the most philosophically sophisticated among them, Rudolf Carnap, had been a student of Frege's while an undergraduate at Jena, and his notes from Frege's 1911–1913 lectures have survived. Carnap describes Frege's influence as "the most fruitful inspiration I received from university lectures" (Reck & Awodey 2004, p. 18). The strictly formal and syntactic understanding Carnap had of not only logic but, for parts of his career, all of philosophy, could only have been possible due to the mathematization and formalization of logic brought on by the works of Boole, Frege and others in the late twentieth century. Both Boole and Frege are mentioned in the Vienna Circle's unofficial manifesto (Hahn, Neurath, & Carnap 1929).

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Frege was praised by similar groups in Germany and Poland. Polish logician Stanisław Leśniewski is the first known to have discovered the formal flaw in the revised version of Law V published in the appendix to volume II of *Grundgesetze* (Sobociński 1949–1950). While the logical system of *Grundgesetze* could not be accepted as is, a rich variety of ways of "fixing Frege" have been researched, and will continue to be.

Despite the initial underappreciation Frege complained of, his work is now extremely widely read. His influence on contemporary philosophies of mathematics, on debates in the theory of meaning, the nature of truth, the logic of propositional attitudes and *de se* attitudes, have already been mentioned. More than 125 years after their publication, Frege's *Grundlagen* is now probably the most widely read book on the philosophy of mathematics, and his "Über Sinn und Bedeutung" one of the most widely read articles in the philosophy of language. The logical systems made possible by the work of Boole, Frege, and others of the late nineteenth century have changed philosophy and computing forever. Seeds even of twenty-first century analytic philosophy were planted in the rich logical soil of the nineteenth century. For example, the earlier nineteenth century works of Bernard Bolzano (especially Bolzano 1837) include anticipations of Tarski's work on the concept of logical consequence (Tarski 1936), and the recent hot topic of metaphysical grounding (e.g., Fine 2012). Bolzano's writings have only recently gained the attention of analytic philosophers, but now that they have, they will no doubt become more influential. The seeds of nineteenth century logic will continue to be reaped for years to come.

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