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How to Think a Figure; or, Hegel's Circles

In memory of Maryam Mirzakhani

NO PHILOSOPHER BETTER EPITOMIZES circular reasoning, nor more fittingly embodies the logical fallacy of *circulus in probando*, than G. W. F. Hegel, because he loves talking about circles and his points often go in circles.[1] This essay isn't about Hegel's endearing oral delivery, about which plenty has been said since the man himself was alive. Rather, this is an attempt to think philosophically about circles and rethink so-called Hegelian circularity.

Why we would even bother thinking about circles is on account of their "eternal" symbolism within philosophy and theory—the fact that the circle always stands for *something*, ever the symbol of this or that thing you don't really like. Invariably, that something is Hegel, on the grounds that he typifies the circularity of thought. For example, Ludwig Feuerbach writes: "The circle is the symbol and the coat of arms of speculative philosophy, of the thought that rests on itself. Hegel's philosophy, too, as is well known, is a circle of circles."[2] This is indeed one of those long-standing clichés about Hegel. So it's no surprise that Louis Althusser—whose anti-Hegelianism can be forgiven in the knowledge that he's really not a deep reader of Hegel—draws a circle around himself in order to step out of it, striding from ideology to science:

The whole history of the "theory of knowledge" in Western philosophy from the famous "Cartesian circle" to the circle of the Hegelian or Husserlian teleology of Reason, *shows* us that this "problem of knowledge" is a closed space, i.e., a vicious circle (the vicious circle of the mirror relation of ideological recognition).[3]

That's a lot of circles, a lot of symbols. What do they mean? What do they really "*show*"?

ABSTRACT This essay suggests that Hegel's philosophy of the concept is also a philosophy of the figure, a demonstration of conceptuality by other means. Neither images nor symbols, Hegel's figures—primarily, circles—initiate and image the movement of thought.

These symbolic circles mean too much and not enough: call something a circle and the point about it is somehow immediately clear, but wait, how is something that's not actually a circle *like* a circle or *identical* to a circle? Such symbolic circles mean what you want them to mean, which is exactly why all symbols are hopelessly bound up with the proverbial problem of meaning—tokens of the human need to line things up, to know where things go, ever since we first took soil for filth and polluted it accordingly.[4] All the more reason, then, to think dialectically about our problem in an essay that both defends and extends Hegel's thinking on this question of circularity and figures.[5]

Our problem is this: Hegel rates figures below concepts but he needn't always do so. In his mind, figures are just a bunch of numbers and lines annoyingly uncommitted to either Thought or Being. He also dislikes figures because they aren't language, or are a lesser language.[6] Hegel has his reasons for these positions.[7] But those reasons may not be good enough, judging by the way he seems to equivocate about figures. Sometimes figures are so perfect as to figurate the very significance of his philosophy (and that's no small feat!). And sometimes they are pretenders to proper conceptuality, conceptual thinking by other means. Hegel is all over the place on this question, as we'll soon see. But if one applies even a modicum of mathematical wit to the figures Hegel does offer us—and most of them are circles, with triangles as a close runner-up—then we discover some rather interesting spaces in which dialectics might wander.

Here I propose that figuration (in my renewed Hegelian sense) is what Walter Benjamin tried to describe a century later as "dialectical images"—only Hegel's figures are already in motion, are already an action, and already an "image of thought" that's not static but dynamic.[8] Figures are figures of thought because they move, just as thinking and the dialectic itself must move, according to Hegel. Figures both initiate and image the movement of thought. Figures are for thinking, whereas symbols are for reading and interpretation. Figures are dialectical. As such, they supply a way of practicing Hegel's abiding ambition, as laid out in the preface to the *Phenomenology of Spirit*, "to bring fixed thoughts into a fluid state [festen Gedanken in Flüssigkeit zubringen]," so that we can apprehend "dialectical form [dialektische Form]," which is the representation of philosophical, critical thinking: in other words, *Darstellung*.[9] Just what this thought process involves, the circle may help us grasp . . . and think.[10]

Circles of Thought

To begin with, Hegel is certainly aware that the circle is a convenient symbol for subjective idealism (his term), which describes a consciousness that

tirelessly posits itself in that Fichtean fashion, reaching out as if in the dark to find what obstructs it, so that it can recoil, know its parameters, and sally forth once more. As he says in the *Encyclopaedia Logic*: "The reader is certainly not to be blamed for this distress, since he is required to regard himself as confined within an impenetrable circle of merely subjective representations."[11] So it's no wonder Hegel understands that the circle—indeed, the "circle of purely subjective conceptions"—is also the very image of logical fallacy and circular self-reflexivity. For example, in the *Science of Logic*, he writes:

Peculiar indeed is the thought (if one can call it a thought at all) that I must *make use* of the "I" in order to judge the "I." . . . Surely it is laughable to label the nature of this self-consciousness, namely that the "I" thinks itself, that the "I" cannot be thought without the "I" thinking it, an *awkwardness* and, as if it were a fallacy, a *circle*. The awkwardness, the circle, is in fact the relation by which the eternal nature of self-consciousness and of the concept is revealed in immediate, empirical self-consciousness—is revealed because self-consciousness is precisely *the existent* and therefore *empirically perceivable* pure *concept*; because it is the absolute self-reference that, as parting judgment, makes itself into an intended object and consists in simply making itself thereby into a circle. —This is an awkwardness that a stone does not have.[12]

The idea isn't so terribly complicated. It's that, yes, self-consciousness is reflexive. It's thinking about thinking, a consciousness about consciousness. Yet Hegel in his critique of Immanuel Kant here is mocking the idea that the "I" appeals to some abstract "I" that preexists the self and yet is produced and summoned by that very self, as if to say, "Hey 'I,' show me again what I am." That is indeed circularity, and also a fallacy in the sense that the "I" *proves* the "I"; that the "I" demonstrates the truth and existence of the "I." Well, of course it does.

Yet Hegel changes it up, and embraces his inner circle—with this claim in the *Philosophy of Right*:

Philosophy forms a circle. It has an initial or immediate point—for it must begin somewhere—a point which is not demonstrated [nicht Erwiesene] and is not a result. But the starting point of philosophy is immediately relative, for it must appear at another end-point as a result. Philosophy is a sequence which is not suspended in mid-air; it does not begin immediately, but is rounded off within itself.[13]

Let's put the big questions to the side for a moment—the question of what is philosophy, and whatever it is, how can it be like a circle, much less how it "forms a circle." Instead, let's just see that Hegel is toying with the language of logical fallacy, with (for example) a choice and funny phrase like "not demonstrated [nicht Erwiesene]." Not only that, he is playing with the step-by-step

propositional style of syllogistic argumentation: this, then that, then this con-clusion. We read that philosophy forms a circle. Then we are instructed that we aren't caught in syllogistic fallacy—that this isn't a fallacious figure, a bad image, after all. Nay, we are assured that we aren't caught in *circulus in pro-bando*: your beginning "is not the result." The beginning is relative anyway.[14] The beginning isn't an answer known in advance (fallacy) but rather a begin-ning that's a question: where you start is a question of where you are, and you could be anywhere, depending on your problem. (Philology for babies bears out the complexity of any *problem* as a beginning: the Greek πρόβλημα is deliciously polyvalent, and the English version follows suit, in showing that the problem could be in your head or out there in front of you.) And once you begin, you'll end, eventually, and your start will become a point, a here, which is abstracted and described as one of those ponderous things called "beginnings." It's always better for declared beginnings to come last, not first. Worry about labels later. Save the first for last.

Hegel, in other words, fully appreciates the problem of circularity, and it's our job to learn how, even in passages that initially sound like Hegelian clichés about "spirit," or read like Hegel Cliff-Noting himself *avant la lettre.* For example, here's Hegel in his introduction to the history of philosophy, talking about the "development" of the philosophical sciences and the "series of the formations of the spirit":

What concerns us here more precisely is the formal. If absolute development [Entwicklung], the life of God and of the Spirit, is only *one* process, only *one* move-ment [Bewegung], then it is merely abstract. But universal movement [Bewegung] as concrete is a series of shapes [Gestaltungen] of the Spirit. This series should not be pictured as a straight line but as a circle, a return into itself. This circle has as its circumference a large number of circles; *one* development [Entwicklung] is always a movement [Bewegung] passing through many developments [Entwicklungen]; the totality of this series is a succession of developments [Entwicklungen] curving back on itself; and each particular development is a stage of the whole. Although there is progress in development, it does not go forward into (abstract) infinity but rather turns back into itself.[15]

Right there in the first sentence, though, Hegel denies schoolroom teleol-ogy—one process, one narrative, one end: "If absolute development, the life of God and of the Spirit, is only *one* process, only *one* movement, then it is merely abstract." Instead, "there is progress in development, it does not go forward." Development is rather better construed as "movement" and what moves is plural, "a series of shapes [Gestaltungen] of the Spirit." Think shapes, but don't visualize a straight line! And don't think the line will "go forward into (abstract) infinity" either; if it tries, it'll be bent back into a circle by the gravity of all that's "concrete," real, all that exists, all that is.[16] All of it—including thought. So the exact figure that denies boring and

predictable teleology, rather than reinscribes it, is a circle. And the circle images the way in which the individual sciences are interlinked with all the others and so forth.

This makes for a good message about disciplinary methods in a start-up academic program, but this circle, when taken strictly as a figure, doesn't entirely work, lacking Hegel's elaboration (and he indeed returns to this image with more figural specificity than what's here, as we'll see in the penultimate part of this essay). For now, we can simply observe that a stickler about figuration would find this image hard to construct. Usually—in, say, Euclid—circles are inside a larger circle. Or in more recent mathematics we're off solving problems in circle packing or circle covering, and if not that, then we're making scalloped circles. Here, however, the circle is constructed because "its circumference [is] a large number of circles." How so? And how large? So large as to reduce down to points (bearing in mind that a circle on the circumference of another circle is attached to that circle only at a point)? Are the circles bisected at their center points by the line of the entire primary circle? One must be tedious from time to time to make the rudimentary point that it matters whether we read these pictures in Hegel as images or think (of) them as figures.

Figures make us think differently, would be one way of looking at this. And one thing they make us think (according to Hegel) is thinking itself. Yes, philosophy can take on this or that problem or content, but what is thinking anyway? It is plural, some would say infinite, in its features, processes, and products—from emotions to dreams, and all synaptic firings in between. So it's not a dumb question. And we know this because it's Hegel's concern in the final chapter of the *Phenomenology of Spirit*, called "Absolute Knowing," where he speaks of

the movement which is cognition—the transforming of that *in-itself* into that which is *for itself*, of Substance into Subject, of the object of *consciousness* into an object of *self-consciousness*, i.e. into an object that is just as much superseded, or into the *Concept.* The movement is the circle that returns into itself, the circle that presupposes its beginning and reaches it only at the end.[17]

Hegel chooses the figure of the circle to say that while there is an "end" or telos, there is no *ending* in the moment of Absolute Knowing because there remains "movement which is cognition," the circle. It's important to understand that Hegel embraces the circular cliché in order to undo it, breaking apart two ideas that are commonly imaged as circles—movement, on the one hand, and *telos* or end(ing), on the other. He does this not only to refigure Kant's formulation that movement and "end" are the same in the third critique and in his moral philosophy. And for Hegel, they are not the same. Rather, he also wants to show that the Absolute isn't an "end" in the sense

conceived by vulgar teleology, which sometimes is fancy talk for saying that the *Phenomenology of Spirit* simply ends, as most all books do (so why all the fuss?). What we have in the final chapter is an end that keeps going, perhaps even a purpose without purpose (an idea Kant proposed and basically neglected), because its primary figure is the circle, whose uniqueness lies in the fact that it has no end or for that matter (like philosophy itself, famously) no beginning. This entire last chapter follows the movement of movement itself. Now, don't bristle at the jargon. For Hegel "movement" is invariably a noun masquerading as a personification, and in "Absolute Knowing" this noun (mostly *Bewegung* but often *Entwicklung*, another guise) won't go away, won't stop.[18] And that seems to be the idea here, which is why Hegel calls this final chapter of the *Phenomenology of Spirit* "Absolute *Knowing*," which is probably a better translation of "Das absolute Wissen" than "Absolute *Knowledge*," if only to remember that this final chapter doesn't include some big reveal, some unveiling of "knowledge" after so much novitiate preparation, as if you're now finally ready to look into the light and deal in certainties. Rather, "Absolute Knowing" brings us to a place where knowing is what it is, after it's tried on everything else, every other "shape": motion, the motion of the dialectic, which itself never ends. In this Absolute, there will be movement, this dark of night not so still, its silence stirred not by moos alone.

Circle of Dialectics

How can the circle be a figure for dialectics? It's a question we can answer by thinking generally about the difference between Kant and Hegel.[19] Even better, we can answer it by looking at what Hegel has to say about Kant and, in particular, about Kantian terminology like the "transcendental" and the "transcendent." In his *Encyclopaedia Logic*, Hegel writes:

The "transcendent" here is (quite generally) whatever goes beyond the determinacy of the understanding, and in this sense it occurs first in mathematics. For instance, it is said in geometry that one must imagine the circumference of a circle to consist of an infinite number of infinitely small straight lines. Determinations that count as utterly diverse for the understanding (straight line and curve) are expressly posited here as identical. . . . However, Kant called that unity of self-consciousness "transcendental" only, and by this he understood that it is only subjective, and does not also pertain to objects themselves as they are in-themselves.[20]

As Hegel never hesitates to say throughout his works, the understanding (*Verstand*) is fixed and "one-sided." The understanding can't even "do" the thought of difference in the definition of the identity of a thing, much less apply its fixed categories to knowing a circle in all of its peculiarities:

"Characteristics which the understanding holds to be totally different, the straight line and the curve, are expressly invested with identity."[21] Differences are smoothed over by the understanding, so that it can *know* that circle (if you'll pardon the Kantianism). It's an easy point with implications for concepts vis-à-vis figures.

The concepts of the understanding—and we're still talking about Kant here—can't compute what they can't compute: the concept of a square can't compute a noumenal circle, and that of a circle can't compute a noumenal square. The fabled "square circle," in other words, will never appear within experience. Yet Hegel is saying that something like this figure *can* appear, if only provisionally in the geometric imagination where "one must imagine the circumference of a circle to consist of an infinite number of infinitely small straight lines." For Kant and for Hegel, there's no constitutive concept for this particular shape, because it's a shape in motion, shuttling between one concept and another, and doing so outside of ordinary time and run-of-the-mill becoming. For his part, Kant in the *Critique of Pure Reason* believes in the "schematism of the pure understanding"—and note here the old Greek "skhêma" or σχῆμα, which is often translated as "figure"—and he picks as an example the "pure geometrical concept of a *circle*," which he says helps us formulate the "empirical concept of a *plate*." The plate activates the concept of the circle; even if the two are not congruent to each other, there's enough overlap for the understanding to get the picture and make a judgment that this plate can rightly be said to be circular. Kant is talking about "pure figures in space" in a way that suggests that figures are somehow fixed—whereas Hegel's approach to figures (and to circles especially) is to regard them as motile, complex, changing, and composed of other figures.[22] Figures are difficult because they are not concepts in the Kantian, or, as we'll see, Hegelian sense.

In fact, you can see this distinction between figure and concept quite clearly in Kant's "On a discovery" (1790), in which he pauses to speak first of Archimedes's description of a ninety-six sided polygon:

Now when *Archimedes* described a *polygon of ninety-six sides* around a circle . . . did he or did he not ground his concept of the above-mentioned regular polygon on an intuition? He inevitably did so, not in that he actually drew it (which would be an unnecessary and absurd demand), but rather, in that he knew the rule for the construction of his concept, and hence that he could determine its magnitude as closely to that of the object itself as he wished, and could give it in intuition in accordance with the concept, and thereby demonstrated the reality of the rule itself, and likewise that of this concept for the use of the imagination.[23]

It's not that he drew. It's that he knew. And in his *knowing*, he automatically grounded in intuition impossible-to-imagine complex polygons—basically

rendering them as objects of experience. How on earth? That's because the polygon—and the motivating example in philosophy at the time, as for Hegel, was always the thousand-sided chiliagon, which looks like a circle and is probably as close to a circle as anything in your kitchen—is *already* a concept of the understanding rather than a figure of the imagination. More simply, the figure is really a concept, and—to look at this from a different angle—it's only given to the understanding (as an object of experience) because *the concept is also the object itself*. Archimedes "knew the rule for the construction of his concept, and hence that he could determine its magnitude as closely to that of the object itself as he wished, and could give it in intuition in accordance with the concept, and thereby demonstrated the reality of the rule itself." While Kant speaks of "this concept for the use of the imagination"—and here he means after intuition, not before—we begin to realize that the figure escapes visualization and picturing and instead enters into *knowing* via mathematical language, as when calculating the sum of its angles ($180[n-2]$, with n being the number of sides) or the number of diagonals ($\frac{1}{2}n[n-3]$), and so forth. This happens with any figure. Picture a square. Picture an octagon? Pentadecagon? Go on. At some point, the urge to mathematize the figure is irresistible because you can't visualize its increasing complexity any farther.

Mistaking a figure for a concept is something Hegel avoids doing, but not because he wants to protect figuration or cares very much for mathematical language. For example, while he experiments with Euclidian geometric formulae and basic functions in trigonometry, he is peevish about "limits" in integral and differential calculus:

It is the geometricians especially whose constant concern is to *conceptualize* the *approximation* of a magnitude to its limit, and who insist on stressing this aspect of the difference of quantum from quantum, that it is not a difference and yet it is. But all the same, approximation is by itself a category that says nothing and conceptualizes nothing.[24]

It is strange that Hegel takes this position, not only because it's fair to suggest that he is perfectly capable of conceptualizing surplus, which is what "*approximation*" is.[25] Rather, his position is strange because Hegel speaks of a "quantum" in a patently dialectical way: it "is not a difference yet it is."[26] It's puzzling that he finds this situation to be bad, when it seems to conform to the way he rewrites the "laws of identity" as identity in difference.[27] And it's further mystifying, because the "quantum," in its identity and difference, can be figured as a concept of a special kind—what Hegel calls (in another context) "one determinate concept" resulting from two concepts working together.[28]

Only concepts can be concepts. Even so, Hegel will continue to let figures do conceptual work. In the *Encyclopaedia Logic*, he talks of circles

in relation to that signal logical, dialectical form—namely, identity/difference, which is not one concept but two. Here, he questions the difference between the concept of a circle and the appearance of circularity given off by something "like a circle":

Since it is forgotten that identity and opposition are themselves opposed, the principle of opposition is taken also for the principle of identity in the form of the principle of contradiction; and a *concept* to which neither or both of two mutually contradictory characteristics apply, is declared to be logically false, like, for instance, a square circle. Now, although a polygonal circle or rectilinear arc contradicts this principle just as much, geometers do not hesitate to consider and to treat the circle as a polygon with rectilinear sides. But something like a circle (its mere determinacy) is not yet a *concept*; in the concept of circle, centre and periphery are equally essential, both characteristics belong to it; and yet periphery and centre are opposed to and contradict each other.[29]

The point here is very similar to that of the previous quotation. There is the hard and fast concept of the circle—"centre and periphery are equally essential"—and there is the fact that the circle isn't purely a circle from a certain point of view, because "geometers do not hesitate to consider and to treat the circle as a polygon with rectilinear sides." What is the concept here, really, then? There isn't one: "A *concept* to which neither or both of two mutually contradictory characteristics apply, is declared to be logically false, like, for instance, a square circle." Hegel doesn't want to say what Kant says—that the circle is a concept. Instead, he declares: "Something like a circle (its mere determinacy) is not yet a *concept.*" Yet Hegel also doesn't want to say what Hegel says, which is that the figure qualifies as "one determinate concept," a concept of two. Well, if it's not a concept, then the circle stays a figure. And perhaps that's for the best, which I can't entirely say Hegel himself appreciates . . . to the fault of his thinking, which now we can say isn't circular enough!

Circles of Movement

Let's return to the question of circularity as movement (which in Marx will become "circulation," but that's for another paper). It's not just that thought moves, and that the circle is a symbol for motion. There's more to it than that. The problem is that we have to *think movement*. Hegel's aim in many of his writings is to exercise our minds in ways we have forgotten. Before this moment in modernity, if I may wildly generalize, one could think movement and visualize the animation of shapes morphing into other shapes by dint of mathematics, be it basic geometry or even the calculus. It's not for nothing that Hegel's concern, which is also everywhere in his writing, is with the "shape" or *gestalt* of thought—Spirit moving through its

various shapes. These are major motifs in Hegel's *Phenomenology of Spirit*, as with many of his other works, and in many cases they are animated by his figural thinking.

For example, Hegel invites us to think figures in motion when he refers to mathematical functions in his discussion of the "higher definition of the circle" in his *Philosophy of Nature*:

A higher definition of the circle than that based on the equality of the radii, is that which takes account of the difference in it, and so reaches a complete determinateness of the circle. This occurs in the analytic treatment of the circle which contains nothing but what is found in Pythagoras' theorem; the other two sides are sine and cosine, or abscissa and ordinate—the hypotenuse is the radius. The relationship of these three is the determinateness of the circle, not simple as in the first definition, but a relation of differentiated elements.[30]

You get determination (that is, a circle) when you have difference, and the difference is that triangles are fundamentally a part of circles—most rudimentarily, right triangles (a triangle with one of its angles at 90°). It's a straightforward idea in trigonometry that expresses the profound affinity between the Pythagorean theorem that is $a^2+b^2=c^2$ and the equation for the circle that is $x^2+y^2=r^2$. Here in the *Philosophy of Nature* Hegel speaks of "the analytic treatment of the circle which contains nothing but what is found in Pythagoras' theorem." How is this so?

Behold the way in which a "unit circle" (simply, a circle whose radius is *unus* or 1) is constructed. Go to a Cartesian plane or graph and find its center. This is the center where the *x* and *y* axes meet or, in Hegel's terms, the "abscissa and ordinate" of (0,0). Then find a point on the graph at abscissa and ordinate of (0,1) and draw a line from (0,0) to (0,1). You've just made a line. But you also made a radius. Spin the line counterclockwise while it's still anchored at the center point (0,0), and go all the way around. You've just made a circle, and the points along its circumference can be located on the graph at (*x,y*). Trigonometry—and in particular the powerful cosine and sine functions—helps you determine the numerical values of these coordinates through the construction of right triangles within the circle, where (for example) the hypotenuse is the radius, and the *x* and *y* lines are the cosine and sine, or the other two sides of the right triangle. If you know the length of one side—and you already know one of the angles is 90°—you can determine the length of the opposite and adjacent sides by calculating the ratios using the cosine and sine functions.[31] Suffice it to say that in the "higher definition of the circle," you have not only difference, by way of the right triangle as a constituent part of the circle. You also have *motion*, in the way you observe not only the construction of the circle but also the increasing and decreasing proportions of the right triangles at various

coordinates, as the point moves along the circumference of the circle. The rudimentary right triangles with one angle at (0,0) can be imagined to be in motion, changing ratios, and therefore shape, as the hypotenuse/radius spins while anchored at (0,0): a circle is made, and right triangles of every ratio are drawn.[32]

Circles of Actuality

It's because the circle is the figure of thinking-in-motion that Hegel can use the circle as the image of action, or lack thereof. In *Phenomenology of Spirit*, for example, you have this lovely quote, which tells us where action relates, *quite impossibly*, to *telos*, or the *end*:

Accordingly, an individual cannot know what he [really] is until he has made himself a reality through action. However, this seems to imply that he cannot determine the *End* of his action until he has carried it out; but at the same time, since he is a *conscious* individual, he must have the action in front of him beforehand as *entirely his own*, i.e. as an *End*. The individual who is going to act seems, therefore, to find himself in a circle in which each moment already presupposes the other, and thus he seems unable to find a beginning, because he only gets to know his original nature, which must be his End, *from the deed*, while, in order to act, he must have that End beforehand. But for that very reason he has to start immediately, and, whatever the circumstances, without further scruples about beginning, means, or End, proceed to action; for his essence and *intrinsic* nature is beginning, means, and End, all in one.[33]

This reads like existentialist comedy illustrating the problem of ethics: in its most difficult version ethics is the analysis of action *while acting*, which quickly pulls you down into sedentary ethicizing, inaction. For Hegel, it's the dual problem of ends—the difficulty of having an end before acting but only knowing fully that end after you've acted. It's bloody Sartrean to say, as Hegel does of our beleaguered "individual," that "each moment already presupposes the other, and thus he seems unable to find a beginning, because he only gets to know his original nature, which must be his End, *from the deed*, while, in order to act, he must have that End beforehand."

Anyway, this is what Hegel calls a circle. It's what he calls the "paralysis of these dimensions" of time.[34] It's also what Jean-Paul Sartre calls the "vicious circle" in his well-known example of a young man's dilemma. Does he stay to help his mother live out her years or go to war to join his countrymen in arms? If his end is to help his mother, then his fellow soldiers are his means—bad move. Vice versa—ditto, and around he goes.[35] This sounds like Hegel, but the joke here is on Kant, really, and his hoped-for "kingdom of ends," in which (contra Kant) someone is always going to eat it and become your means no matter what end you choose, including altruism.[36]

The joke is also for geometers and trig-heads: if our lost soul thinks he's moving forward by acting on any goal or end, in the circle he's moving in a direction we experience as backward. We already visited this problem earlier in the way the movement is counter-clockwise, counter to the image and motion of time as we read it on our wrists, but here we can further appreciate it in numerical form: to go from 0° to 360° or 0 to 2π radians—to go up in number—is to go in reverse, as it were. And when you arrive at your end, you're in two places at once, or four for that matter: you're at a point that's both 0° and 360°, or 0 and 2π. This is a great and tricky thing to think, and it's a perfect figure for double binds—the either/or, the both/and, and other existentialist lolz of yore. Circles can be dizzying, the more you go round like this—indeed, nauseating. So much for enjoying your "original nature."

Rest assured. These Sartrean themes aren't shooed in here. Or rather, Sartre seems to be having secret Hegelian thoughts in his expositions about the way in which "existence precedes essence"—the "first principle of existentialism":

Man is not only that which he conceives himself to be, but that which he wills himself to be, and since he conceives of himself only after he exists, just as he wills himself to be after being thrown into existence, man is nothing other than what he makes of himself.[37]

Hegel would simply call this coupling of essence and existence "Actuality"—"Actuality is the unity, become immediate, of essence with existence, or of what is inner and what is outer."[38] It's what Sartre would call existence, which while preceding your essence eventually is coterminous with it once you make your essence by your actions, with your projects, in your situations, and so forth. Likewise, Hegel says that "the utterance of the actual is the actual itself, so that the actual still remains something-essential in this [utterance] and is only something-essential so far as it is in immediate external existence."[39]

I don't want to go on overlong about this link between Hegel and Sartre. My intention is only to bring us to the figure of the circle as the conception not of constraint, predetermination, predestination, or anything of the like. Rather, it's the figure for what Hegel calls "Real Possibility." This is the kind of possibility that matters—the kind that is actualizable. But why is the circle our access to the idea of "Real Possibility"? We may be wary to think the oxymorons or, if you will, conflated opposites Hegel asks us to ponder from time to time (like the "universal individual" in the *Phenomenology of Spirit*, how might "possibility" be said to be "real"—for anything is possible?[40]), yet here we must do the same in thinking the figure of the circle, the thought of which also requires that we bracket our ideas about the circle as a *symbol*. For

Hegel, the circle is the elegant figure for "totality," not for the totality from which one recoils in the mistaken belief that the thought of totality is the ideology of totalitarianism, et cetera, but rather the totality that figures everything that is importantly dialectical yet open ended as "Real Possibility": what's possible, what's actual, what's content, what's form, what's unity, what's difference, what's necessary, what's contingent, what's inner, what's outer. That is the lesson of a complex passage in the *Encyclopaedia Logic*, which readers may consult at their leisure.[41] It's also the lesson of a passage in the *Philosophy of Nature*, where Hegel shows that "totality" is not a pregiven One but an "actuality" comprising particulars that resist universalization as if to enact their very name—"the particular" as *das Besondere*, fundamentally asunder from what's whole.[42]

Circles of Philosophy

Near the end of the *Science of Logic* in the section on "the absolute idea," Hegel mentions his notorious "circle of circles":

By virtue of the nature of the method just indicated, the science presents itself as a circle that winds around itself, where the mediation winds the end back to the beginning which is the simple ground; the circle is thus a *circle of circles*, for each single member ensouled by the method is reflected into itself so that, in returning to the beginning it is at the same time the beginning of a new member. Fragments of this chain are the single sciences, each of which has a *before* and an *after*—or, more accurately said, *has in possession* only the *before* and in its conclusion *points to its after*.[43]

We've seen this idea already in my discussion about the beginning of philosophy—only now we see that circulation (after all, "circularity" isn't quite so precise a term) involves "mediation." It is mediation of a complex kind, apparently, where one science is two sciences is all sciences: each recursion produces a new perspective, and thus a new discipline. And the beginning, the point of the older science, is finally grasped in the establishment of a new one that emerges from it. As Hegel says in the *Phenomenology of Spirit*: "Consciousness, therefore, necessarily runs through this cycle again, but this time not in the same way as it did the first time."[44]

What interests us, however, is the way Hegel concludes this figural moment at the very end of the *Science of Logic*, this turn to the *circle of circles*. It so happens that this final moment is (not surprisingly) a transition to another figure altogether:

This idea is still logical; it is shut up in pure thought, the science only of the divine *concept*. Its systematic exposition is of course itself a realization, but one confined within the same sphere. Because the pure idea of cognition is to this extent shut up within subjectivity, it is the *impulse* to sublate it, and pure truth becomes as final

result also the *beginning of another sphere and science*. It only remains here to indicate this transition.[45]

It's a lesson in what happens with any kind of constraint—something can and will break it. The constraint of thought truly is the very "problem of thought" from the perspective of critique and the good old-fashioned *Ideologiekritik* you'll never see me abandon. It's not for nothing that Hegel's circle is a *chain*. Chains are for breaking, like all constraints. We typically cite ignorance or stupidity as a constraint on thinking, and continue we shall, but here Hegel has his own targets: *logic* (because it's a discourse in which one is trained and sometimes flogged in the olden days whilst learning it, and don't even get me started on logicians); and *theology* (with mention of the "divine"). That's a full-nelson lock on thinking. But even when this kind of thinking is "shut up within subjectivity," it too runs the circle, finds its ground, then is sublated and becomes something else. Hence, the "transition."

Figurally, however, we can now reduce this transition to its *figure*: Hegel goes from circles to spheres, "the *beginning of another sphere and science*." What is this breakthrough that is another sphere once one goes round the circle? Truth is, we'll never know. We can only think its real possibilities, regarding them within the figural frame. And we can do that by turning to Hegel's later iteration of this scene of figuration in the *Encyclopaedia Logic*, where we find similar ideas, similar figures, and a similar transition from figure to figure:

Each of the parts of philosophy is a philosophical whole, a circle that closes upon itself [ein sich in sich selbst schließender Kreis]; but in each of them, the philosophical Idea is in a particular determinacy or element [in einer besonderen Bestimmtheit oder Elemente]. Every single circle [einzelne Kreis] also breaks through [durchbricht] the restrictions of its element [seines Elements] as well, precisely because it is inwardly [the] totality, and establishes/grounds a wider sphere [begründet eine weitere Sphäre]. The whole presents itself therefore as a circle of circles [Kreis von Kreisen], each of which is a necessary moment, so that the system of its particular elements [das System ihrer eigentümlichen Elemente] constitutes the whole idea—which equally appears in each single one of them.[46]

This is one of the more widely cited passages from Hegel. But it's time to admit it, finally: he is royally screwing up here, and right under our noses. He's not supposed to do this! He's adopting a thoroughly *figural language* to make the most lofty and serious of claims about his philosophical system in relation to the other disciplines—of course, disciplines that are also a part of his philosophy in more general terms, the whole circle of thought run through in the *Encyclopaedia Logic*, which is literally one circle right there after the Greek (ἐγκύκλιος παιδεία)—in addition to all that Hegel was lecturing

on, which was everything: aesthetics, politics, history, philosophy, theology, logic, natural science, and so forth.[47] And not only has he enshrined in his famous "Forward" the very figural language he says everywhere else is to be eschewed—going so far as to discuss "the philosophical Idea" as it courses through figures—but he also does this at the *beginning* of his great philosophical work known as the encyclopedia of the philosophical sciences. What a start!

Figures are Hegel's best way of thinking here, whether he likes it or not.[48] We can go down the checklist. He shows the circle as a point in motion. The aforementioned circle is self-closing, in other words, which Hegel says as if to emphasize the *proces*s by which a circle is made, asking us to follow the circular motion of the point rather than (necessarily) seeing at one glance the completed image of a circle, as we would in an illustration book or anything by Kant.[49] Hegel will never speak of a circle without talking about movement, which is what makes his circles a figure rather than a symbol or static image. Elsewhere, he tells of "a *circle* that winds around itself, where the mediation winds the end back to the beginning which is the simple ground." In the *Philosophy of Nature*, he contemplates circular mechanics.[50]

And then there's this odd thing in Hegel's figuration of philosophy. This circle—or better, this moving point that constructs a circle, "breaks through [durchbricht] the restrictions of its element [seines Elements] as well, precisely because it is inwardly [the] totality, and establishes/grounds a wider sphere [begründet eine weitere Sphäre]." Or, as the popular translation has it, the circle "bursts through the limits imposed by its special medium, and gives rise to a wider circle." One thing at a time. First, the circle breaks from its "element." What does this mean? It's easy to answer, because Hegel has done us the favor of *thinking rigorously figurally* here. We shouldn't construe "seines Elements" as a reference to some kind of Empedoclean "medium," or some substance like Anaxagoras's aether, so much as the older Greek sense of "elements" or *stoicheia* (στοιχεῖα), meaning, among many other things: principles or rules. The rule of the circle—its element—on the coordinate plane is $(x-h)^2 + (y-k)^2 = r^2$. But the rule needn't be only in the language of math. The rule can be words that ~~ask~~ tell you to picture things, as we see in Euclid's *Elements* (appropriately titled): "A circle is a plane figure [σχῆμα] contained by one line such that all the straight lines falling upon it from one point among those lying within the figure are equal to one another."[51] And we can have it both ways, for the rule can be expressed by either mathematical formulae or words; it is not reducible to either—an idea Aristotle understood precisely because "element" can also mean "letter."[52]

So those are the elements of the circle. (I'll stop pointing out that Hegel shouldn't be talking like this.) But what of the "breakthrough"? This "breakthrough" is the transition we're meant to observe: as he wrote in the *Science*

of Logic, the key "transition" is "the *beginning of another sphere and science* [der *Anfang einer anderen Sphäre und Wissenschaft*]."[53] However, here, in the forward to the *Encyclopaedia Logic*, we have a related figural movement and transition that happens to be more complex: the circle breaks from its "elements" to become a different figure (σχῆμα) altogether. If it didn't break through, if Hegel omitted this verb, in other words, the result would be just another circle, maybe a larger one but still, *elementally*, a circle—on Euclid's definition that a circle is "a plane figure contained by one line such that all the straight lines falling upon it from one point among those lying within the figure are equal to one another."[54]

So what is the new figure? Hegel tells us. The circle breaks from its elements—or the point deviates from its circular pattern—to produce not a "wider circle" but a "wider sphere" (*eine weitere Sphäre*). This "wider sphere" is the new figure for the *totality* that is *philosophy*. Other readings of the "circle of circles" will continue to be important in the interpretation of Hegel, and there will always be drawings, but it is indeed interesting to think of this totality as a sphere, because it is—quite simply—compelling to think the figure of the sphere itself. You can do this in all kinds of ways, beginning with the elemental approach. You can say a sphere comprises an infinite number of points all equidistant from the center. Or you can cite Euclid, who, in gathering the wisdom of the ancient mathematicians in his *Elements*, describes a sphere as a semicircle spun round the diameter.[55] Come to think of it, you can simply spin a whole circle around the line drawn by any two diametrically opposed points.[56] A similar exercise can be found in Archimedes's *On the Sphere and Cylinder*, where one spins a circle round its diameter and at the same time (thanks to some points along the circumference of the circle that form an interior polygon) inscribes parallel circles on the surface of the sphere, much as one would draw longitude lines on a globe. It's best to have Archimedes tell it himself: "Then, if the polygon and great circle revolve together about the diameter AA′, the angular points of the polygon, except A, A′, will describe circles on the surface of the sphere at right angles to the diameter AA′."[57] And there are your right angles again. See them?

A sphere is, in short, a circle made of circles or, if you will, the parts of circles, which are—to follow Hegel's figural thinking here—*incomplete* in their own right, just as are the individual sciences in relation to the whole that is the entirety of philosophical science. And that whole, that totality, is a dimensional figure different from a mere circle in one dimension, from the point of view of the moving point; or two dimensions, if we're talking about this point as coordinates on a plane (*x, y*). The pure sphere is in two dimensions, from the perspective of the moving point, but give the sphere volume and it's in three dimensions. In this broader whole, indeed a wider

sphere, you're not going around the circle either forward or back, or round again. Rather, the entire surface, as well as the whole spherical volume, is the space of possibility. Of course, this looks like yet another example for the infinite, the many within the one. Busted. But as a figure for facing the facts of a situation within which one can take stock, strategize, and act, it's frankly to be preferred to an infinity that amounts to astral escapism, or to a multiplicity with no organization at any level.

Hegel seems to lose control of his figural scenario near the end of his forward, however. He simplifies it in this added exposition: "The single science is just as much the cognition of its content as an object *that is*, as it is the immediate cognition in that content of its passage into its higher circle [höheren Kreis]."[58] Or, using another translation, "Each of these subdivisions [Logic, Nature, Mind] has not only to know its contents as an object which has being for the time, but also in the same act to expound how these contents pass into their higher circle."[59] What is this "higher circle" if it's not simply idiomatic German for the goal of, say, social climbing? Michael Inwood rewrites this phrase as "a circle of a higher order," and so I'd be content to name a sphere a higher order of circle.[60] Yet some paragraphs earlier (in §16) Hegel sticks with his spherical theme in writing: "Sciences of this kind are also *positive* inasmuch as they do not recognize their determinations as *finite*, or show the passage of these and of their entire sphere into a higher one [ihrer ganzen Sphäre in eine höhere aufzeigen]."[61] Judging by all of this, we can simply conclude that Hegel loses control of his figural thinking. As I said already, he's all over the place. I get the sense he loses control because he loses patience. You can't always tell with Hegel.

The End

So: *Is Hegel's thinking circular?* Yes and no—yes, but not in the way it's always been *symbolized*, as logical fallacy or solipsism. Rather, his thinking about circles and circularity are a window onto his larger interest in figures, which I hope we can now see are thought differently from symbols and images (*Bilder*).[62] We have enough here, I hope, to say that Hegel supplies a figurative philosophy that parallels his thinking about concepts, their capacities, limits, motions, and interrelations with other concepts. Figures are like concepts. They, too, change and morph in the way concepts do: figures are composed of other figures, and concepts are composed of other concepts, themselves never emerging as stable forms of possible experience. In this way, figures picture and initiate the movement of thought.[63]

Hegel's figurative philosophy also parallels his thinking about images—the Bildungsroman about the "shapes" of consciousness—"shapes" or

Gestalten standing as one of the constants in all of Hegel, who asks us to regard the "gallery of images" that is the slow becoming of Spirit.[64] Figures remind us of what Hegel calls "picture thinking" or *Vorstellung* (presentation)—the chief problem of *Vorstellung* being that it's like the understanding: it is fixed, in this case a static or motionless image, typically a ritual symbol that does the believing for you.[65] That said, it still comes as a shock to hear Hegel speak of modern calculus as if it were exactly like religion in the way "higher mathematics falls back on pictorial representation," or *Vorstellung*, which is a "less perfect means of representation [Darstellungsweise] to bother oneself with."[66] Not everyone got *le mémo* that we should avoid *Vorstellung*, for it remains a key phenomenological approach to images as generally Other. As Hegel reminds us in the final chapter of the *Phenomenology of Spirit*, "*picture-thinking*" is "the form of otherness for consciousness."[67]

Hegel's philosophy is figurative because Hegel himself practices figurative thinking as if he were doing exercises not unlike those of logic, which he curiously praises in his rationale for an initial volume on logic itself: "The Logic is the most *difficult* science, inasmuch as it has to do, not with [sensible] intuitions nor even, like geometry, with abstract sense-representations, but with pure abstractions, and inasmuch as it requires a trained ability at withdrawing into pure thought, holding onto it and moving within it."[68] I call this curious because Hegel hastens to name geometry here, when he needn't name it at all if he really didn't care for it. But he does, because it's the closest competitor logic has in this effort to think thinking: "Logic consists in one's becoming proficient in thinking (since this science is the thinking of thinking) and in one's coming to have thoughts in one's head and to know them also as thoughts."[69] Logic may not be like geometry, but geometry is sometimes like logic. And concepts may not be like figures, but figures are sometimes like concepts.

Finally—and in truth this can't ever end—Hegelian figuration not only expresses the very purpose of philosophy as a totality, a circle of circles, a higher sphere of thinking. It also comprehends the entire enterprise of getting this all down on paper: that project of writing called *Darstellung*, where *thinking* hopes to be coterminous with *representation*, even if one lags behind or moves ahead of the other in acts of *knowing* over time and in space.

Notes

1. Hans-Georg Gadamer comes in second with his hermeneutic circle.
2. Ludwig Feuerbach, *Principles of the Philosophy of the Future*, trans. Manfred Vogel (Indianapolis, 1986), 65.

3. Louis Althusser, "From *Capital* to Marx's Philosophy," in Louis Althusser et al., *Reading Capital: The Complete Edition*, trans. Ben Brewster and David Fernbach (New York, 2016), 54.

4. It's a simple point. "To take numbers and geometrical figures, as has often been done, as mere symbols (the circle, for instance, of eternity; the triangle, of the Trinity) is, on the one hand, harmless enough; but, on the other hand, it is foolish to believe that more is thereby expressed than can be *comprehended* and *expressed by thought*"; G. W. F. Hegel, *The Science of Logic*, trans. and ed. George di Giovanni (Cambridge, 2015), 180; see also 281.

5. Tom Rockmore, in *Hegel's Circular Epistemology* (Bloomington, 1986), seeks to challenge the common criticism of Hegel's circularity, showing that the philosopher intends to reject linear modes of thinking and instead propose an antifoundationalist philosophy. On the circularity of any reading of Hegel, see Werner Hamacher, *Pleroma: Reading in Hegel*, trans. Nicholas Walker and Simon Jarvis (Stanford, 1998).

6. "Others have employed *lines, numbers*, and *geometrical figures* as symbols. A snake biting its own tail, for example, or a circle count as symbols of eternity. Such a symbol is a sensible image; spirit, however, does not need that sort of symbol, it has language. If spirit can express itself in the element proper to thought, then the symbolic is an incorrect, a false mode of presentation"; G. W. F. Hegel, *Introduction to the History of Philosophy*, in Quentin Lauer's *Hegel's Idea of Philosophy, with a New Translation of "Hegel's Introduction to the History of Philosophy"* (New York, 1971), 122.

7. Here's Hegel's view about figures:

Since the human being has in language a means of designation that is appropriate to reason, it is otiose to look for a less perfect means of representation [Darstellungsweise] to bother oneself with. It is essentially only spirit [Geiste] that can grasp the concept as concept [Begriff], for the latter is not just the property of spirit but its pure self. It is futile to want to fix it by means of spatial figures and algebraic signs [Raumfiguren und algebraische Zeichen] for the sake of the *outer eye* and a *non-conceptual, mechanical manipulation*, such as a *calculus* [und einer begrifflosen, mechanischen Behandlungsweise, eines Kalküls]. Also anything else that might be supposed to serve as symbol [Symbol], like the symbols [Symbole] for the nature of God, can at best elicit only intimations and echoes of the concept [Begriff]; if, however, one insists on employing such symbols for expressing and cognizing the concept, then it is not their *external nature* which is fit for the task; the reverse relation applies, namely that what in the symbols is the echo of a higher determination is recognized to be such only by virtue of the concept, and it is only by *shedding* the sensuous standbys that were supposed to express it that one comes closer to the concept; Hegel, *Science of Logic*, 545–46; in German: G. W. F. Hegel, *Werke in zwanzig Bänden*, 20 vols. (Frankfurt, 1969–79), 6:295–96.

You can see an equivocation here. Figures are lesser forms. However, if "one insists" on using them, then treat them allegorically, "shedding the sensuous standbys," and approaching the concept itself. This "however" should point us to figures as they are understood in mathematics, not in allegoresis.

8. Walter Benjamin, *The Arcades Project*, trans. Howard Eiland and Kevin McLaughlin (Cambridge, MA, 2003), 462. I am stealing (back) the phrase "image of thought" from Gilles Deleuze because he nicked the idea from Hegel.

9. G. W. F. Hegel, *Phenomenology of Spirit*, trans. A. V. Miller (Oxford, 1977), 20/§33 and 41/§66, translation adjusted; in German: Hegel, *Werke*, 3:37 and 3:62.

10. Here I am extending some lines of thought on the relation between concepts and figures in my book *The Birth of Theory* (Chicago, 2014), chap. 6—the idea, as here, to bring conceptualization and figuration (of various kinds, literary, geometrical) together.

11. G. W. F. Hegel, *The Encyclopaedia Logic*, trans. T. F. Geraets, W. A. Suchting, and H. S. Harris (Indianapolis, 1991), 201/§131. See also *Hegel's Aesthetics: Lectures on Fine Art*, 2 vols., trans. T. M. Knox (Oxford, 1975), 1:33: "Feeling remains a purely subjective emotional state of mind in which the concrete thing vanishes, contracted into a circle of the greatest abstraction."

12. Hegel, *Science of Logic*, 691. See also Hegel, *Phenomenology of Spirit*, 219/§363, on the "circle of abstractions" in "simple self-consciousness."

13. G. W. F. Hegel, *Elements of the Philosophy of Right*, ed. Allen W. Wood and trans. H. B. Nisbet (Cambridge, 1991), 26/§2; in German: Hegel, *Werke*, 7:30–31.

14. This is why Hegel says in the *Encyclopaedia Logic* that "philosophy shows itself as a circle that goes back into itself; it does not have a beginning in the same sense as the other sciences, so that the beginning only has a relation to the subject who takes the decision to philosophise, but not to the science as such"; *Encyclopaedia Logic*, 41/§17.

15. Hegel, *Introduction to the History of Philosophy*, in Lauer, *Hegel's Idea of Philosophy*, 80; slightly modified; German in brackets from G. W. F. Hegel, *Einleitung in die Geschichte der Philosophie*, ed. Johannes Hoffmeister (1940; reprint, Hamburg, 1959), 111.

16. Hegel comments elsewhere on the line as "the image of the progression in infinity" (*Science of Logic*, 119)—a point he makes in relation to a circle: "As true infinite, bent back upon itself, its image becomes the *circle*, the line that has reached itself, closed and wholly present, without *beginning* and *end*."

17. Hegel, *Phenomenology of Spirit*, 488/§802; trans. modified. Spinoza is alluded to here; more fully, see Hegel, *Science of Logic*, 212–13, and Benedictus de Spinoza, *Ethics*, trans. Edwin M. Curley (New York, 1996), 7 [book 1, prop. 11], 35–36 [book 2, prop. 7, scholium, and prop. 8].

18. Readers can examine §§788, 796, 799, 801, 803, 804, 805, 807, 808, in Hegel, *Phenomenology of Spirit* (in whichever edition you choose), which taken together tell the story of movement.

19. For more on Immanuel Kant and Hegel and their different conceptual modes, see my "The Function of Theory at the Present Time," *PMLA* 130, no. 3 (2015): 809–18.

20. Hegel, *Encyclopaedia Logic*, 85/§42. Hegel is changing things up here a bit, but by his own terms, the transcendent steps out *beyond* the categories of the understanding—for Kant, more simply, the transcendent overstepping of the limits of experience itself; see *Critique of Pure Reason*, trans. and ed. Paul Guyer and Allen W. Wood (New York, 1998), 386 [a296/b353].

21. See also Hegel, *Science of Logic*, 725; Hegel, *Phenomenology of Spirit*, 26/§45 (regarding "rigid, dead propositions" in the "formalism" of the mathematical understanding); *Hegel's Philosophy of Nature*, trans. A. V. Miller (Oxford, 1970), 38/§259 (remark). For related ideas, see Hegel, *Elements of the Philosophy of Right*, 256–57/§227.

22. Kant, *Critique of Pure Reason*, 271 [a137/b176]; 273 [a141].

23. Immanuel Kant, "On a discovery whereby any new critique of pure reason is to be made superfluous by an older one," in *Theoretical Philosophy after 1781*, ed. Henry Allison and Peter Heath; trans. Gary Hatfield et al. (Cambridge, 2004), 304.

24. Hegel, *Science of Logic*, 231.

25. On Hegel and surplus, see primarily Slavoj Žižek, *Less Than Nothing: Hegel and the Shadow of Dialectical Materialism* (New York, 2012).

26. Some great thinking on *quanta* can be found in Béatrice Longuenesse, *Kant and the Capacity to Judge: Sensibility and Discursivity in the Transcendental Analytic of the Critique of Pure Reason* (Princeton, 1998), 263–71.

27. See my *The Birth of Theory*, 25.
28. For example, Hegel writes: "Cause and effect, for example, are not two diverse concepts but only *one determinate concept*, and causality is, like every concept, a *simple concept*" (*Science of Logic*, 535). Likewise, different modes of thinking and (re)presenting never switch places and don the habit of its opposite: "Spirit, even though it possesses the concept in the shape of concept, lets itself go into pictorial representation and runs wild in the infinite manifoldness of the latter" (536).
29. Hegel, *Encyclopaedia Logic*, 186/§119. See Hegel, *Science of Logic*, 215–16.
30. Hegel, *Philosophy of Nature*, 33/§256, remark.
31. On these functions, see Friedrich Engels, *Dialectics of Nature*, in *The Collected Works of Karl Marx and Frederick Engels* (New York, 1975–2005), 25:538–44.
32. Calculus is our next step in terms of thinking, figuring, and mathematizing circular motion, but this rudimentary mode of thinking is possible within trigonometry.
33. Hegel, *Phenomenology of Spirit*, 240/§401.
34. Hegel, *Philosophy of Nature*, 43/§261, remark.
35. Jean-Paul Sartre, *Existentialism Is a Humanism*, trans. Carol Macombe, ed. John Kukla (New Haven, 2007), 31–32.
36. Immanuel Kant, *Groundwork for the Metaphysics of Morals*, ed. Mary Gregor (Cambridge, 1997), 41. And, of course, as Kant admits later in this very same work: "It must be freely admitted that a kind of circle comes to light here from which, as it seems, there is no way to escape" (55).
37. Sartre, *Existentialism Is a Humanism*, 22.
38. Hegel, *Encyclopaedia Logic*, 213/§142.
39. Both quotes from Hegel in this paragraph are from *Encyclopaedia Logic*, 213/§142. The Sartrean lesson is a Hegelian one about the production of essence out of existence: as Hegel says, "Thus defined, essence is only a product, an artifact" (*Science of Logic*, 338). Essence is what is gathered from existence, and thus precedes it: "Cognition cannot in general stop at the manifold of *existence*, but neither can it stop at *being*, pure *being*; immediately one is forced to the reflection that this *pure being*, this *negation* of everything finite, presupposes a *recollection* and a movement which has distilled immediate existence into pure being. Being thus comes to be determined as essence, as a being in which everything determined and finite is negated" (*Science of Logic*, 337).
40. Hegel, *Phenomenology of Spirit*, 16/§28.
41. See Hegel, *Encyclopaedia Logic*, 220–21/§147.
42. "This is the universal circle of movement in the individual Actual, a circle which, more accurately, is the totality of three circles, the unity of universality and actuality: the two circles of their opposition and the circle of their reflection-into-self"; Hegel, *Philosophy of Nature*, 300/§342.
43. Hegel, *Science of Logic*, 751–52.
44. Hegel, *Phenomenology of Spirit*, 71/§118.
45. Hegel, *Science of Logic*, 752. "Die systematische Ausführung ist zwar selbst eine Realisation, aber innerhalb derselben Sphäre gehalten. Weil die reine Idee des Erkennens insofern in die Subjektivität eingeschlossen ist, ist sie *Trieb*, diese aufzuheben, und die reine Wahrheit wird als letztes Resultat—auch der *Anfang einer anderen Sphäre und Wissenschaft*. Dieser Übergang bedarf hier nur noch angedeutet zu warden"; Hegel, *Werke*, 6:572–73.
46. Hegel, *Encyclopaedia Logic*, 39/§15, trans. modified; in German: Hegel, *Werke*, 8:60.
47. On circularity and encyclopedia, Mark C. Taylor, *Erring: A Postmodern A/theology* (Chicago, 1984), 79; Howard P. Kainz, *Paradox, Dialectic, and System: A Contemporary Reconstruction of the Hegelian Problematic* (University Park, 1988), 93.

48. For an attempted illustration, see Julie E. Maybee, *Picturing Hegel: An Illustrated Guide to Hegel's "Encyclopaedia Logic"* (Lanham, MD, 2009), 28–29; 44n6 (here Maybee credits Béla Egyd for the design).

49. This emphasis on process is why I reject the widely used translation of "a circle rounded and complete in itself"; Hegel, *The Logic of Hegel*, 2nd ed., trans. William Wallace (New York, 1959), 24.

50. Here is the passage:

   This return of the line is the circle; it is the Now, Before and After which have closed together in a unity in which these dimensions are indifferent, so that Before is equally After, and vice versa. It is in circular motion that the necessary paralysis of these dimensions is first posited in space. Circular motion is the spatial or subsistent unity of the dimensions of time. The point proceeds towards a place which is its future, and leaves one which is the past; but what it has left behind is at the same time what it has still to reach: it has been already at the place which it is reaching. Its goal is the point which is its past; and this is the truth of time, that the goal is not the future but the past; Hegel, *Philosophy of Nature*, 43/§261, remark.

   I would recall our passage from the *Philosophy of Nature*, discussed even earlier, in which Hegel speaks of a circle as a "relation of differentiated elements."

51. Euclid, *The Thirteen Books of Euclid's Elements*, vol. 1, trans. Thomas L. Heath (Cambridge, 1926), 153; for the Greek cited parenthetically, 183. See Heath's instructive note on the meaning of "figure" as shape, see 182–83.

52. It's Aristotle's wording that intrigues me: "The formula of the circle does not include that of the segments, but that of the syllable includes that of the letters [στοιχείων]; yet the circle is divided into segments as the syllable is into letters [στοιχεῖα]"; *Metaphysics* 1035a, in *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. Jonathan Barnes (Princeton, 1984), 2:1634. The inserted Greek text is from the version published by the Loeb Classical Library: Aristotle, *Metaphysics, Books 1–9*, trans. Hugh Tredennick (New York, 1933), 1:354.

53. The German text is from Hegel, *Werke*, 6:572–73.

54. A passage from the *Phenomenology of Spirit* (237/§396) supplements this reading:

   Action has, therefore, the appearance of the movement of a circle which moves freely within itself in a void, which, unimpeded, now expands, now contracts, and is perfectly content to operate in and with its own self. The element in which individuality sets forth its shape has the significance solely of putting on the shape of individuality; it is the daylight in which consciousness wants to display itself.

55. Euclid, *The Thirteen Books of Euclid's Elements*, vol. 3, trans. Thomas L. Heath (Cambridge, 1908), 261.

56. In calculus—and again with a basis in the Pythagorean theorem—a sphere can also be made from a right triangle, by spinning the latter around the x or y axis on either of the sides forming the right angle. While it spins, you change the triangle's ratios, such that you construct a sphere (one circle on top of the next) while at the same time determining its volume.

57. Archimedes, "On the Sphere and Cylinder," in *The Works of Archimedes*, trans. T. L. Heath (Cambridge, 1897), 30 [proposition 23].

58. Hegel, *Encyclopaedia Logic*, 42/§18.

59. Hegel, *Logic of Hegel*, Wallace trans., 29/§18.

60. M. J. Inwood, *Hegel: The Arguments of the Philosophers* (New York, 1983), 515.

61. Hegel, *Encyclopaedia Logic*, 40/§16.

62. The well-known interest in, and distinction between, sign and symbol (primarily, but not only, after Paul de Man's "Sign and Symbol in Hegel's *Aesthetics*,"

Critical Inquiry 8, no. 4 [1982]: 761–75), isn't really *that* large a problem in Hegel, nowhere near as proportionate to the immense interest in this question in the 1980s on, and certainly not as encompassing as Hegel's reflections on figures and figuration across his works.

63. And so we can turn a passage like this around . . . :

> But least of all should we reckon to the credit of such sciences as for example Geometry and Arithmetic that their material carries an intuitive element with it, or imagine that their propositions are grounded by it. On the contrary, the presence of that element renders the material of these sciences of an inferior nature; the intuition of figures or numbers is of no help to the science of figures and numbers; only the thought of them produces this science [das Anschauen der Figuren oder Zahlen verhilft nicht zur Wissenschaft derselben; nur das Denken darüber vermag eine solche hervorzubringen]; Hegel, *Science of Logic*, 539; in German: Hegel, *Werke*, 6:286.

 . . . to say that "only the thought of them"—the *thought* of figures—can help us along in our individual (or for that matter total) philosophical science.

64. Hegel, *Phenomenology of Spirit*, 492/§808.
65. As Hegel says: "Thinking as *understanding* stops short at the fixed determinacy and its distinctness vis-à-vis other determinancies; such a restricted abstraction counts for the understanding as one that subsists on its own account, and [simply] is"; Hegel, *Encyclopaedia Logic*, 125/§80.
66. Hegel, *Science of Logic*, 545–46; in German: Hegel, *Werke*, 6:294 and 6:295–96.
67. Hegel, *Phenomenology of Spirit*, 484/§796.
68. Hegel, *Encyclopaedia Logic*, 45/§19.
69. Ibid.