

## Hegel and the Big Bang

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When we consider Hegel's account of the Absolute Idea, its dispersal in nature and its self-re-appropriation into the systematic conclusion (*Schluss*) of Absolute Spirit, we are reminded of certain elements found in contemporary Big-Bang cosmology theory. In 2007, in my *Real Words*, I included reflections on this theme, under the ironical, Kierkegaardian heading of "Concluding Unscientific Post-scriptum". I would now like to revisit those considerations, not because the universe itself has changed over the past 13-odd years, although of course it has, but simply because my understanding of both Hegel and Big Bang cosmology have developed since then.

Why bother with such an anachronistic juxtaposition?<sup>1</sup> My reason is the following: this book deals with Hegel's metaphysics. Metaphysics has three traditional objects: the self, the world and God, which are essentially inter-related, as Kant showed in his "Dialectic of Pure Reason". We may start with either concern and when we push our thinking to the limit, we cannot help but encounter the other two. For example, reflection on the cosmos (world) opens onto questions of determinism, freedom and selfhood. When we reflect on the universality of the universe and the conditions for its absolute beginning, we are confronted with ideas of creation and something we might refer to as godly or divine. Big Bang cosmology allows us to begin with a contemporary reflection on the world taken as an extra-phenomenal entity, as an idea of

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<sup>1</sup> Fortunately, I am not alone in this juxtaposition. See Errol E. Harris, *Cosmos and Theos: Ethical and Theological Implications of the Anthropic Principle* (Amherst: Humanity Books, 1992), and his *Cosmos and Anthropos: A Philosophical Interpretation of the Anthropic Cosmological Principle* (Amherst: Humanity Press, 1993).

Reason, as Kant would say, and thus, as an object of metaphysical reflection. This step is philosophically important since it allows us to bring Hegel's metaphysics of the Absolute "down to earth", to make them "relevant" in today's distinctly anti-idealist, materialist, empiricist culture. Similarly, the reader may recall, I expressed the idea of absolute revelation in the more currently digestible terms of contemporary phenomenology, as what has become known as "givenness". Let us begin by looking together at some theoretically and empirically established elements of Big Bang cosmology.

Big Bang theory postulates the existence of a singularity, out of which the universe exploded and then grew into its current, ever-expanding state, an expansion which has been increasing exponentially over the past 4 or 5 billion years and which will continue to do so, driven by postulated black matter/energy. An early and short period of generalized hyperinflation (well within the first second of the universe's life) introduced a fundamental element of regularity, homogeneity, structure and comprehensibility into the universe as we know it today.

Accounts of the Big Bang tend to look backwards towards the beginning or origin of the universe and therefore toward the original singularity. We begin in the macrocosmic realm that we are best acquainted with, governed by the theory of relativity, and then move back in time. This retrospective look, which is also a look further into space, leads inevitably to considerations of the microcosmic realm, governed by the strange principles of quantum physics. As we approach the original singularity, looking back in time and further in space, it is generally agreed that the "laws" of physics "break down", to use the words found in most vulgar accounts of this state. Although physics attempts to reach further back toward the singularity, creating superdense matter in particle accelerators, in the belief that science will one day find the laws that govern matter at such high densities, the conditions of inflation and the original singularity

remain beyond all accounts.

Indeed, regarding the singularity, there is nothing more to say about it than what can truthfully be said about the Parmenidean One: it is. The reason for this aporia is simply that if the singularity is the absolute beginning of time/space, it makes no sense to enquire into the physical conditions or causes that gave rise to it and which might explain it, otherwise the conditions or causes would precede the singularity. And if that were so, then the singularity would no longer be the beginning of time-space, thus postulating an “earlier” singularity, and so on, in an infinite regression that would bring about the theoretical nullification of all that is, as Aristotle understood in his deduction of a first and final cause. So Big Bang theory must simply begin with the singularity as an axiom. This is another way of saying that physics can never demonstrate why or even how the Big Bang occurred. Faced with such an apparent impasse, we might adopt a Heideggerian approach and simply celebrate the question of Being itself, and dwell within it: the impossible possibility of something rather than nothing. However, if we look at the singularity in Hegelian terms, as the punctuality of the Absolute, perhaps we can find something meaningful to say about it.

The singular punctuality of the Absolute Idea is arrived at the end of the *Logics*. According to their metaphysical mission, which I presented above, in Chapter 2, the *Logics* first present the articulations of thought as it thinks objectivity, predicating substantial otherness in such a way that it becomes increasingly invested or informed with subjectivity. In the second part of the *Logics* (“Subjective Logic” in the *Greater Logic*), what was previously “objectivity” or substance, now invested with selfhood, expresses its new-found agency. In the terms that I have been discussing throughout this book, such agency, conceived in its extra-human exclusivity, should be understood as revelatory, and the selfhood of such revelation is that of the

Absolute. Briefly put, Being which was conceived in the “Objective Logic” as predicated substance or nature, now manifests itself subjectively as “*Natura naturans*”. The culmination of Hegel’s onto-logical grammar, traced out in his *Logics*, is the absolute identity between objectivity and subjectivity, between (human) reason and (absolute) revelation, between thought and being, between subject and substance. The punctuality of this culmination is an instance of absolute singularity that Hegel calls the Absolute Idea.

At the end of the *Logics*, within such an explosive identity, reason can be nothing other than *raison d’être*. In terms of the ontological argument, essence is so full of itself that it must spill over into existence. In more Hegelian terms, the concept cannot *not* be, so it is. It is, *because* it is, with the “because” representing the reason it *is*. Being has every reason to be and so, *is*. This moment is expressed in the “sich entschliessen” (the “de-syllogizing”, “dis-closing”) of the Idea, by which nature is “frei entgelassen (“freely let go”) at the end of the *Logics* and before the *Philosophy of Nature*. How does this pertain to the Big Bang?

If the cosmological singularity is the absolute beginning, if it can have no cause outside itself, then it also must have its own reason to be in itself. Its principle of sufficient reason (the principle by which, in Leibniz, things are brought into existence) must be within itself. The singularity must be both reason and being or thought and being, as a self-identical unity.<sup>2</sup> If the singularity, like the absolute Idea, is its own reason to be, then it must be. As well, the singularity must *be* absolutely or universally, since it is absolute. There is only one original

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<sup>2</sup> This is already implicit in the fact that the Big Bang theory takes the singularity as an axiom; as such it is both a reason and a thing.

singularity per universe (I am not counting “singularities” that are observable in black hole astrophysics) and so the being of that singularity will also be universal, as will its *raison d’être*. However, as Leibniz’s principle of sufficient reason, as interpreted through Hölderlin’s short *Urteil und Sein* text, which I introduced above in Chapter 2, also teaches us that existing Being cannot rely entirely on identity; being needs difference in order to be. Consequently, we should read the absolute singularity as a self-identity that nonetheless contains difference within itself, in the form of reason-to-be. Thought and being must be there, in uneasy unity, from the very beginning. We can also read the universe’s initial inflation as an ontological judgment, as a self-positing into an otherness that turns out, in the end, to be itself.

Depending on whom you talk to, the universe will either continue to expand or collapse back onto itself (Big Crunch), leaving once again a singularity, not in the past but in the future. This ultimate singularity is postulated to happen following the collapse of all matter, energy, information or entropy into the ultimate, super-massive black hole, one resulting from the gravitational collapse of the entire universe. Of course, we speculative philosophers realize that this future singularity must be the same as the past singularity, since “singularities” are physically indistinguishable. Indeed, universal “Singularities” are the same *one* since there is nothing in them to predicate any difference. In both cases, the entity is a universal singularity; it is absolute in the sense that there can only be one, as Spinoza wrote about the Substance. Consequently, since the future, “terminal” singularity is the same as the past, “original” singularity “both” must embody the identity of thought and being, whose difference may only be conceived of as “having been”, at some point in the cosmic unfolding, in counter-distinction or opposition to each other. In other words, the terminal singularity is and *has been* both thought and nature.

This unicity of initial and terminal singularity might explain a problem some contemporary cosmologists raise: the missing information. According to the Big Crunch scenario, the ultimate, universal black hole absorbs all entropy and information within it and then, when there is nothing else to absorb, “evaporates”. As I wrote above, nothing can be predicated of it. The question is, what happens to all the missing information, all the perceivable, understandable, graspable quanta of the universe? A Hegelian might answer that it subsists as thought and Being, compressed, once again, into the punctual singularity of the Absolute Idea, whose Being is both its reason for having been and its *raison d’être*. As is the case with the Absolute Idea, which can do nothing other than *be*, to de-syllogize itself, to let itself go as nature, the terminal cosmological singularity cannot help but spill over into existence. The Big Crunch scenario has thus, according to a Hegelian reading, a necessary element of temporal, ontological circularity.

More recently, the ‘Big Crunch’ scenario has been challenged by the postulated existence of dark matter, and the observable fact that the universe, in its exponentially accelerated expansion, seems to have slipped the bonds of gravitation as a force sufficient to arrest or reverse its course. According to this “Big Chill” hypothesis, the universe will simply continue its course, ever-expanding, at an exponentially faster rate, into a final state of entropy where all energy, matter and time/space have been exhausted, a hundred or so trillions of years from now. However, I would argue that such a chilling scenario does not, in fact, discount the culmination that I described as occurring in the Big Crunch. Indeed, taking the postulated outcome of absolute entropy at its word, there would be nothing to distinguish the Big Chill’s terminal state from the singularity that the Big Crunch arrives at (and begins with). In “both” cases, there is no time, no space, no matter, no energy and no information. Nothing happens because there is

nothing *to* happen. There is no possibility of predicating the difference between the two terminal states of Big Crunch and Big Chill, nor between them and the “initial singularity” postulated by the Big Bang because, in both cases, there is nothing to predicate. We can say that the “final” and the “initial” universal singularities, whether arrived at through the Big Crunch or the Big Chill theories, are ontologically identical since there is literally nothing to distinguish “them”. This means that the hypothetical gravitational collapse “back” to the original singularity is the same as the hypothetical dark matter/energy pull to the “future” singularity; gravitational force and dark matter/energy fuel the same rush to the same singularity.

Consequently, Big Bang theory inevitably postulates a state of singularity that is both the spatial/temporal beginning and the end. The narrative arc of the existing universe and everything happening within it should therefore be conceived as taking place between two moments of absolute singularity, which are really the same. Reading absolute singularity through the lens of Hegel’s Idea helps us see that its cosmological iteration must necessarily carry its reason-to-be within itself, as reason for what is, for what has been and, presumably, for what will be.

In order to explain some of the observable phenomena that seem to throw certain aspects of the Big Bang theory into doubt, *some* cosmologists have come up with the anthropic principle.<sup>3</sup> In its “strong” form, the principle says the universe is the way it is, that is, relatively

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<sup>3</sup> A helpful physicist reader of this chapter commented that most cosmologists are “pinning their hopes on something non-anthropoc, such as string theory.” Again, I am exercising my Hegelian prerogative in choosing the scientific accounts I want to speculate on.

smooth and flat, because otherwise we humans would not be around to perceive, understand or grasp it. Indeed, if the universe had developed any differently, particularly during the chaotic first nano second of inflation, the physical conditions for our existence would be absent and we would not be able to ask the question of Being. Hence, the universe is the way it is, because we are here to observe it, think it and be conscious of ourselves within it.

Stated this way, the anthropic principle resonates with Hegel's notion of revelation as I have been presenting it in this book: absolute agency that reveals itself as nature or substance is not recalcitrant to our knowing of it but rather is essentially meaningful "for us", rational knowledge-seeking beings, because we can find ourselves reflected in the laws that we discover in it. In Hegel's terms, the notion of Absolute Spirit essentially involves the agencies of revelation and reason. Similarly, the anthropic principle acknowledges the existence of conscious, reasoning (human) beings as an actual feature of the universe itself, and postulates that the universe's constitutive information is *for us* as thinking beings. The notion of Absolute Spirit helps us comprehend that, as thinkers for whom the universe reveals itself, we can hardly stand outside that which reveals itself, looking in from somewhere else. There is nowhere else. Rather, we exist in the universe itself, ambiguously situated as actors and spectators within its unfolding in space/time, between the "two" singularities. Briefly, both the anthropic principle and the Hegelian Idea portray us as constitutive participants in the universe's self-conscious self-revelation.

Nonetheless, our position as knowing, self-conscious beings within the absolute spatio-temporal framework of the Big Bang universe is necessarily temporal and, in fact, temporary and finite. Although the existence of the universe between its "two" singularities may be conceived as eternal, since there is no time outside its existence, which might render it circumscribed and

finite, the same cannot be said for us, participants in the universal drama of self-revelation.

Consider this. Since the universe is expanding with a rate of expansion that increases exponentially with the distance between its objects, where further means faster, in about 100 billion years, from our current human position in the Milky Way, all other observable galaxies, with the exception of Andromeda, which by then will have merged with our own, will have receded from view. Their ever-growing distances and speeds will no longer allow light or other energy (information) to reach “us”. Such a cosmic blackout will inevitably occur for any other “us” in the universe, since the same cosmic expansion applies to any cosmic observation point. Every point in the universe will be isolated in terms of information. From that moment on, one could argue that any form of universal, absolute revelation “for us” will certainly be impossible, regardless of who or what that “us” might be.

Further and most definitively, according to the Big Chill model, the ultimate destiny of the universe is cold and lifeless: in 100 trillion years, all stars will have consumed their fuel and burned out. Truly dark matter will expand forever, faster and faster, in cold nothingness, which, as I wrote above, inevitably culminates in the unconditioned conditions of singularity. The universe is now about 14 billion years old. Relatively young, compared with 100 trillion years. The anthropic principle recognizes the plain and simple truth that the present physical state of the universe does indeed allow for the existence of life-based, reflective reason, of which we are the empirical proof, even if our case is utterly unique. However, it is undeniable that at some point in the universe’s extra-singular epic, at some point between a broadly defined “now” and “then”, the physical conditions (energy and matter) for reasoning consciousness, whether in human or other form, will no longer be present. Revelation will be impossible “for us” conscious beings,

both because there will be little or nothing to reveal and because there will be no one for whom revelation can occur. The universe will slip into unconsciousness.

On the other end of the universe's temporal spectrum, it is equally indubitable that the conditions for life-based reflective thought did not exist before the formation of stars and planets, following the inimical physical conditions postulated by Big Bang theory cosmology. It is generally agreed that planets are a fairly recent feature of the universe, beginning to form a billion or so years after the initial flash of inflation. There is little chance that primitive planets could hold complex living organisms and later planetary evolution was almost certainly necessary in order to produce the requisite conditions for complex life forms. Consequently, if conscious, reasoning knowledge of the universe implies both an informative universe and someone or something living and conscious for whom that information is revealed, then both reason and revelation are necessarily temporal and indeed finite, occurring only in the cosmological "sweet spot" between the "two" singularities. However, referring to Hegel's "ideal" reading of the Big Bang/Big Chill universe, it is ultimately irrelevant whether conscious life forms constitute an essentially and necessarily finite moment. Even if, outside the cosmological sweet spot, there was no longer the possibility of reason and revelation, precisely because there presently *is* that reality conscious thought will always *have been* an existing feature of the cosmos' narrative arc. In the Hegelian sense of the *Perfekt* grammatical tense, reason and revelation will always *have been*, and so, will always constitute an essential feature of the universe, corresponding to Hegel's notion of Absolute Spirit.

A Hegelian reading of the anthropic principle helps us understand that the Big Bang universe, in its development, reaches a moment where its reason-to-be reveals itself, at least to some extent, to thought, a moment where nature or the cosmos appears to reasoning agents as the

universal Other, as all that is to be actively known. Further, to the extent that reflective thought can be associated with an instance of freedom, we may infer that freedom is a feature within the universal narrative arc. Finally, in recognizing that reason and revelation are complicit aspects in the universe's unfolding, we may conceive of its epic self-awareness in terms of the Aristotelian god, whose self-contemplative life Hegel invites us to partake in, at the very end of his *Encyclopedia of Philosophical Sciences*.