

Relativity in a Fundamentally Absolute World

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1 | INTRODUCTION

There is a simple argument against relativism. The first premise is the widely accepted claim that the way things are must be necessitated by the way things are fundamentally.¹

Fundamental Entailment. Necessarily, the fundamental facts entail every fact.²

The second premise—which, as we will see later, follows from two plausible principles—says that there is always a modal gap between relative facts and the fundamental facts.

Threat. Necessarily, if the A-facts are relative, then the fundamental facts do not entail the A-facts.

If Fundamental Entailment and Threat are both true, then we have a universal refutation of relativism; for Fundamental Entailment and Threat together entail that relative facts are impossible.

I am inclined by relativism, so it is incumbent upon me to respond to this argument, and my response is to reject Fundamental Entailment. I think that Fundamental Entailment holds for absolute facts, but fails for relative facts. Thus—*modulo* a distinction that I draw later between two sorts of relativity—I accept:

Opportunity. Necessarily, if the fundamental facts do not entail the A-facts, then the A-facts are relative.³

Opportunity is so-named because it is a part of an argument *for* relativism. If Fundamental Entailment fails and Opportunity holds, then one can argue that the A-facts are relative by appeal to the following two premises:

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AB-Contingency. The B-facts do not entail the A-facts.⁴

B-Fundamentality. The B-facts entail the fundamental facts.⁵

It is not uncommon to want to accept both AB-Contingency and B-Fundamentality. It might happen with tense. One might want to say that the tensed facts are not entailed by the tenseless facts, but also want to say that the tenseless facts exhaust (and hence entail) the fundamental facts.⁶ It might happen with chirality, i.e., handed orientation. One might want to say that the oriented facts are not entailed by the unoriented facts, but also want to say that the oriented facts exhaust (and hence entail) the fundamental facts.⁷ The example I will focus primarily upon is color. I want to accept both of the following:

Chromophysical Contingency. The physical facts do not entail the color facts.

Physical Fundamentality. The physical facts entail the fundamental facts.

Physical Fundamentality is my preferred statement of physicalism,⁸ and I want to accept physicalism. But I also want to say that almost any distribution of color is compossible with the physical facts being what they are.

Chromophysical Contingency and Physical Fundamentality are inconsistent if Fundamental Entailment holds. More generally: AB-Contingency and B-Fundamentality are inconsistent if Fundamental Entailment holds; for AB-Contingency and B-Fundamentality together entail that some facts are not entailed by the fundamental facts.

But if Fundamental Entailment fails and Opportunity holds, then AB-Contingency and B-Fundamentality are consistent, and together they entail that the A-facts are relative. We thus have a schematic argument for relativism, and some of its instances are compelling. For example, the argument for color relativism that goes by way of Opportunity, Chromophysical Contingency, and Physical Fundamentality is, I think, compelling.

The main goal of this paper is to develop and defend a relativism that falsifies Fundamental Entailment and verifies Opportunity. But before getting to that, I want to clarify some terminology and introduce and discuss the two principles that together entail Threat.

2 | FUNDAMENTALITY

Officially, I take the notion of fundamentality as primitive.⁹ This is partly for pragmatic reasons. It would be hard to characterize fundamentality without taking a stance on how finely to individuate facts, and I want to remain neutral on that matter. But I think that our grip on the notion of fundamentality, even absent an explicit characterization, is pretty firm. We know that the microphysical facts are a good candidate for being fundamental, and that the culinary facts are not. We also know that a metaphysical view is to be judged partly by the simplicity achieved by the facts it takes to be fundamental. Physicalism is appealing in part because it eschews fundamental psychological facts.¹⁰ Qualitativism is appealing in part because it eschews fundamental individualistic facts.¹¹

Whenever a notion is taken as primitive, there is room for skepticism. One can deny that the notion is in good working order. Ideological skepticism is part of good philosophical hygiene.

Readers who harbor skepticism about fundamentality may be reassured that the view I defend in the end does not require any hyperintensional distinctions. But I think that skepticism about fundamentality is misplaced. As Gideon Rosen says, in a related context:

[Philosophers] can sometimes be too fussy, dismissing as ‘unintelligible’ or ‘obscure’ certain forms of language that are perfectly meaningful by ordinary standards and which may be of some real philosophical use (2010: 109).

And thus it is, I believe, with fundamentality, a notion that enjoys circulation outside of philosophy, and which, as attested by its prevalence in the literature, is of some real philosophical use.¹²

One can regiment fundamentality in various ways. I am going to take it to be a factive operator, applying in the first instance to facts, i.e., true propositions.^{13,14} I also take nonfundamentality to be a factive operator. Any fact that is not fundamental is nonfundamental. Falsehoods are neither fundamental nor nonfundamental.

3 | CONTINGENCY AND RELATIVITY

Two notions of relativity will be important. One is actual relativity, which I simply call ‘relativity’. The other is potential relativity. Potential relativity is the more interesting notion. (Ultimately I will be concerned to defend, not Threat and Opportunity, themselves, but the variants of those principles that concern potentially relative facts.) But quite a lot of philosophical work must be done before we can get potential relativity into view. So for now I set it aside and focus on (actual) relativity, which stands to (fragile) individuals as contingency stands to possible worlds.

3.1 | Contingency

For each possible world w , there is a worldly operator W , which applies to a proposition just if the proposition is true at w . I am going to assume that each worldly operator is bivalent, in the sense of applying, for each proposition, either to the proposition or the negation of the proposition. One worldly operator of special note is the *actuality* operator, @, which is the only factive worldly operator.

In addition to the worldly operators there is also *metaphysical necessity*: an operator, symbolized with ‘ \Box ’, which functions like a universal quantifier. A proposition is necessary just if it is true at every possible world.

I am going to help myself to some standard assumptions about the modal logic of necessity: I am going to assume that anything necessary is true; I am going to assume that anything necessarily implied by something necessary is necessary; I am going to assume that, necessarily, what possible worlds there are is the same at every possible world; and I am going to assume that every worldly operator is rigid, in the sense of applying necessarily whenever it applies.¹⁵

Contingency can be characterized in terms of truth and necessity. A proposition is *contingent* just if either it or its negation is true but not necessary. The contingent propositions are the ones that vary in truth-value across possible worlds, and the contingent facts are the true contingent propositions.

3.2 | Relativity

Relativity can be modeled in a similar way with a space of individuals. To keep things simple, I am going to focus exclusively on fragile individuals, where an individual is fragile just if the individual is momentary and everything true for the individual is necessarily true for the individual. For each (fragile) individual x , there is an individualized operator X , which applies to a proposition just if the proposition is true for x .¹⁶ I am going to assume that each individualized operator is bivalent, in the sense of applying, for each proposition, either to the proposition or the negation of the proposition. One individualized operator of special note is the *true for me* operator M , which is the only factive individualized operator.

In addition to the worldly operators there is also *unanimity*: an operator, symbolized with ‘ U ’, which functions like a universal quantifier. A proposition is unanimous just if it is true for every individual.

I am going to help myself to the analogs of the assumptions made above about the logic of necessity: I am going to assume that anything unanimous is true; I am going to assume that anything unanimously implied by something unanimous is unanimous; and I am going to assume that, necessarily, what individuals there are is the same for every individual.¹⁷

Relativity can be characterized in terms of truth and unanimity. A proposition is *relative* just if either it or its negation is true but not unanimous. The relative propositions are the ones that vary in truth-value across individuals, and the relative facts are the true relative propositions.

3.3 | Color relativism

Color relativism is a good illustration. According to the simple form of color relativism that I will focus on here, the distribution of color for an individual necessarily matches the individual’s perceptual dispositions.¹⁸

It is thus a relative matter *whether* the world is colored. For an individual, like me, the world is replete with color. For an individual that lacks the relevant perceptual dispositions, such as a table or an electron, the world is devoid of color.

It is also a relative matter *how* the world is colored. Suppose that there is an alien, Alf, to whom Mars appears green,¹⁹ and suppose that there is human being, Ralf, who has the same perceptual dispositions as I have. The proposition *that Mars is colored* is true both for Ralf and for Alf; but the proposition *that Mars is red* is true for Ralf and false for Alf, and the proposition *that Mars is green* is false for Ralf and true for Alf.

Every proposition is either true or false, and these color propositions are no exception. The proposition *that Mars is red* is true but not unanimous, just as some propositions are true but not necessary. The proposition *that Mars is green* is false but not unanimously false, just as some propositions are false but not necessarily false.

3.4 | Superaddition

I focus on propositions, but I am equally happy talking about properties. Truth supervenes on being:²⁰ The proposition *that Mars is red* is true just if Mars has the property *being red*; the proposition *that Mars is green* is true just if Mars has the property *being green*. If we say that a property

is relative just if it has different extensions for different individuals, then color relativism is the view that color properties are relative.

Where there are relative properties, there are also relational properties that are not relative. It is unanimous that Mars has both the property *being red for Ralf* and the property *being green for Alf*. (Put propositionally: It is unanimous that Mars is red for Ralf and green for Alf.) The parallel point holds for contingency. Where there are contingent properties, there are also relational properties that are not contingent. If w is a possible world where I have ten fingers and v is a possible world where I have twelve, then it is necessary that I have both the property *being ten-fingered at w* and the property *being twelve-fingered at v* .²¹ (Put propositionally: It is necessary that I am ten-fingered at w and twelve-fingered at v .)

Contingency is thus an ontological superaddition of a sort. According to proponents of contingency, there is a fact about how many fingers I have, over and above the necessary facts about how many fingers I have at each possible world, and it is this additional fact—the fact that I have ten fingers (*simpliciter*)—that is contingent.

Relativity is an ontological superaddition of the same sort. According to color relativism, there is a fact about what color Mars is, over and above the unanimous facts about what color Mars is for each individual, and it is this additional fact—the fact that Mars is red (*simpliciter*)—that is relative.²² Other relativisms pattern similarly. Relativists about tastiness think that there is a relative fact about whether dogfood is tasty, over and above the unanimous facts about which individuals dogfood is tasty for. Relativists about presentness think that there is a relative (and temporary) fact about what time is present, over and above the unanimous (and eternal) facts about which times are present at which times.

Why believe in the ontological superaddition associated with relativity? Various considerations can be brought to bear. Some considerations are more metaphysical. One might be a relativist about presentness because one believes that time flows and believes that time can flow only if there is some fact about which time is present, over and above the facts about which times are present at which times.²³ Some considerations are more representational. One might be a relativist about tastiness because one believes that Lassie, the dog, correctly believes something about the tastiness of dogfood that Joe, the human being, correctly disbelieves.²⁴ One might be a relativist about color because one believes that Ralf and Alf both have veridical color experiences when they look at Mars, even though nothing could be both the color that Ralf experiences Mars as and the color that Alf experiences Mars as.²⁵ But part of the goal of this paper is expand the list of considerations that can be brought to bear. If Fundamental Entailment fails and Opportunity holds, then one can motivate the ontological superaddition associated with taking the A-facts to be relative by appeal to AB-Contingency and B-Fundamentality.

4 | THE THREATENING ARGUMENT

Having said a bit about some terminology, let's return to the threatening argument mentioned at the outset. The argument, perspicuously presented, takes the following three principles as premises:

Fundamental Unanimity. Necessarily, every fundamental fact is unanimous.

Modal Unanimity. Necessarily, every necessary fact is unanimous.

Fundamental Entailment. Necessarily, the fundamental facts entail every fact.

Fundamental Unanimity and Modal Unanimity together entail Threat,²⁶ and Threat and Fundamental Entailment together entail that every fact is unanimous. So relativists must reject at least one of the three.

I will say a bit about Fundamental Unanimity and Modal Unanimity, before turning to Fundamental Entailment.

5 | FUNDAMENTAL UNANIMITY

The preajacent of Fundamental Unanimity—the claim that the fundamental facts are unanimous—is manifestly appealing. One tempting view identifies the fundamental facts with the facts that specify the field values at spacetime points—the “microphysical facts”. The microphysical facts are unanimous, so this tempting view entails that the fundamental facts are unanimous. But the chief rivals to this tempting view also entail that the fundamental facts are unanimous. Some philosophers want to include among the fundamental facts, not just the microphysical facts, but also phenomenal facts or mathematical facts. But the facts that specify the global distribution of phenomenal properties are unanimous, as are the mathematical facts.²⁷ It is true for everything that this stage of me is in pain, and it is true for everything that three is prime.

Fundamental Unanimity is stronger than the preajacent it necessitates, of course. But it enjoys almost as much immediate appeal. Our conviction that the fundamental facts are unanimous is not predicated on the fundamental facts being what we expect them to be. Consider how quickly we would accept the unanimity of facts about entelechies or bare dispositions upon learning of their inclusion among the fundamental facts. The relative facts are naturally thought of as the result of a taking a perspective on something, and the fundamental facts are naturally thought of as the thing on which the perspectives are taken.

There are challenges to Fundamental Unanimity. Probably the greatest challenge comes from the possibility of fundamental temporality in a spatiotemporal universe. A fact is *temporary* if it is not true at every time. In a four-dimensional universe, times are temporal hypersurfaces: three-dimensional parts of the four-dimensional manifold. Temporality in a spatiotemporal universe is thus a form of relativity,²⁸ and a proponent of a spatiotemporal universe could think that some fundamental facts are temporary. For example, they could think that the proposition *that t is present* is true at *t*, false at every other temporal hypersurface, and fundamental whenever true. The fact that this very time is present then would be both relative and fundamental, *contra* Fundamental Unanimity.

I reject the possibility of fundamental temporality in a spatiotemporal universe. (I do not reject the possibility of time flowing in a spatiotemporal universe. But temporality is no part of my preferred conception of the flow of time.) If temporality and the spatiotemporal universe could be reconciled only by denying Fundamental Unanimity, I might be more inclined to accept it. But if the Fundamental Entailment-falsifying relativism developed below is cogent, then there can be nonfundamental temporality in a spatiotemporal universe, and I see little reason to accept the possibility of fundamental temporality in a spatiotemporal universe if there can be nonfundamental temporality in a spatiotemporal universe.

It is also worth noting how little relativists gain by denying Fundamental Unanimity. Say that two individuals are *co-present* if they exist at the same time, and say that a proposition is *simul-*

taneous if it necessarily has the same truth-value for co-present individuals. If the possibility of fundamental temporality in a spatiotemporal universe convinces us to reject Fundamental Unanimity, we still are likely to accept:

Fundamental Simultaneity. Necessarily, the fundamental facts are simultaneous.

And Fundamental Simultaneity, Modal Unanimity, and Fundamental Entailment, although consistent with the possibility of fundamental temporality in a spatiotemporal universe, are inconsistent with almost every other interesting relativistic thesis.

Take tastiness. It has been alleged that there is a proposition—usually identified as the proposition *that licorice is tasty*—that is true for individuals that find the flavor of licorice pleasing and false for individuals that do not.²⁹ But individuals that find the flavor of licorice pleasing can be co-present with individuals that do not. So Fundamental Simultaneity, Modal Unanimity, and Fundamental Entailment are inconsistent with relativism about tastiness.

Mutatis mutandis for color. I want to say that the proposition *that Mars is red* is true for Ralf and false for Alf, even if Ralf and Alf are co-present. So Fundamental Simultaneity, Modal Unanimity, and Fundamental Entailment are inconsistent with the color relativism that I want to defend.

Whether there can be relativity at the fundamental level is an interesting question. Fundamental Unanimity is an interesting thesis—one that, on balance, I think should be accepted. But the real heart of the threatening argument is the anti-emergentism that Fundamental Entailment and Modal Unanimity together entail. If Fundamental Entailment and Modal Unanimity both hold, then relativity at nonfundamental levels requires corresponding relativity at the fundamental level: Some facts can be false at other temporal hypersurfaces only if some fundamental facts are false at other temporal hypersurfaces; some facts can be false for creatures with alien perceptual systems only if some fundamental facts are false for creatures with alien perceptual systems.

A raging relativist might bite the bullet, accepting that some fundamental facts are false for aliens to make room for color relativism.³⁰ But that sort of view holds little appeal. Relativism has advantages, but we should not accept a baroque picture of the fundamental to realize them.

Most interesting relativistic theses are viable, therefore, only if there is some viable emergentism: some way for there to be relativity at nonfundamental levels without corresponding relativity at the fundamental level. And relativity can emerge only if Fundamental Entailment and Modal Unanimity are not both true.

6 | MODAL UNANIMITY

6.1 | Relative necessities

Someone who denies Modal Unanimity posits *relative necessities*: propositions that are relative yet metaphysically necessary. Let the *relative necessities view* be the view that rejects Modal Unanimity and accepts both Fundamental Unanimity and the unanimity of Fundamental Entailment.³¹

On the relative necessities view, the fundamental facts are unanimous, but it is a relative matter what they entail. For example, if color facts are relative, then, according to the relative necessities view: For Ralf, the fundamental facts entail that Mars is red (and not green), and for Alf, the very same fundamental facts entail that Mars is green (and not red). If presentness facts are relative, then, according to the relative necessities view: For this temporal hypersurface—*viz.* Presento—the fundamental facts entail that Presento alone is present, and for the temporal hypersurface

three hours hence—*viz.* Futuro—the very same fundamental facts entail that Futuro alone is present.³²

The relative necessities view delivers the desired emergentism. It offers a way for there to be relativity at nonfundamental levels without corresponding relativity at the fundamental level.

It also highlights something crucial; for the propositions it identifies as relative necessities really are necessary in some strict sense. If presentness facts are relative, then one example is the proposition *that Presento is present*. If color facts are relative, then other examples are chromophysical generalizations—e.g. the proposition *that everything φ is red*, where *being φ* is the strongest intrinsic physical property had by Mars.³³ The counterfactual robustness of these relative facts is astounding:

1. If there had been no human beings, Presento (still) would have been present.
2. If there had been no thought or consciousness, Presento (still) would have been present.
3. If there had been no human beings, everything φ (still) would have been red.
4. If φ things had appeared green to me, everything φ (still) would have been red.
5. If φ things did not appear red to anything, everything φ (still) would have been red.

An adequate relativism must account for the counterfactual robustness of these relative facts, and the relative necessities view, to its credit, does. Counterfactual robustness follows from metaphysical necessity.

But I am indisposed toward the relative necessities view, for two reasons.

The first is the manifest appeal of Modal Unanimity. The truth of necessities is inexorable.³⁴ But how could the truth of something be inexorable if it could fail to be unanimous? How could something impossible be true for something?³⁵

The propositions identified as relative necessities by the relative necessities view are necessary in some strict sense, as witnessed by their counterfactual robustness. But they do not seem to be metaphysically necessary; they do not seem to be necessary *tout court et sans phrase*. There is nothing absurd about φ things being green.³⁶ It is not contrary to the nature of anything that Futuro be present.³⁷ It is unclear whether we can make sense of counterfactual scenarios in which necessary propositions fail.³⁸ We cannot make sense of counterfactual scenarios in which water is an element or three is composite, for example. But we *can* make sense of counterfactual scenarios in which these alleged relative necessities fail:

6. If Futuro had been present, Presento would have been past.
7. If something φ had been green, then something φ would have been not red.

In fact, if unanimity is a kind of objective necessity (as I think it is), and metaphysical necessity implies every kind of objective necessity (as I think it does),³⁹ then ‘relative necessity’ is a contradiction in terms.

The second reason is dialectical. The relative necessities view foregoes the opportunity that Opportunity provides. If Fundamental Entailment fails and Opportunity holds, then the claim that the A-facts are contingently related to the fundamental facts—the claim that there is a modal gap between the A-facts and the fundamental facts—entails that the A-facts are relative. This is an opportunity, a dialectical edge, that relativists should be loath to relinquish. The desire to say that some facts are only contingently related to the fundamental facts is not uncommon. Color is an excellent illustration. Chromophysical Contingency and Physical Fundamentality both enjoy considerable appeal. But the relative necessities view foregoes the opportunity that Opportunity

provides; for the relative necessities view verifies Fundamental Entailment, and thus renders AB-Contingency and B-Fundamentality inconsistent.

These two reasons are not decisive. But they strongly incline me to think that relativists should accept Modal Unanimity if they can.

6.2 | Is relativism consistent with Modal Unanimity?

Relativists cannot accept Modal Unanimity if relativism and Modal Unanimity are inconsistent, as some argument allege. But those arguments are fallacious. Relativism and Modal Unanimity can both be true.

Here we travel ground already trod. Modal Unanimity is structurally similar to a principle that Cian Dorr and Jeremy Goodman call ‘Perpetuity’.⁴⁰ Perpetuity says that (necessarily) everything necessary is eternal, i.e., true at every time. Modal Unanimity says that (necessarily) everything necessary is unanimous, i.e., true for every individual. Dorr and Goodman, seeking to defend the consistency of Perpetuity and temporary facts, formulate a number of arguments that purport to show that Perpetuity is inconsistent with temporary facts, and then offer strategies for resisting those arguments. Structurally similar arguments purport to show that Modal Unanimity is inconsistent with relative facts, and structurally similar strategies of resistance are, I think, equally successful. Let me here mention two arguments especially worth noting.

The first starts from the rigidity of actuality: the claim that everything actual is necessarily actual.⁴¹ It then alleges that actuality and truth coincide unanimously.

ACT. It is unanimous that everything is true just if actual.⁴²

If both principles hold, then relativism and Modal Unanimity are inconsistent. (*Proof:* Suppose that p . Then, by ACT and the rigidity of actuality, $\Box @p$. Hence, by Modal Unanimity, $U @p$. Hence, by ACT, $U p$.)

Everyone should accept the rigidity of actuality. Indeed, everyone should accept the rigidity of every worldly operator. What is true at a possible world should not vary from possible world to possible world. But no relativists should accept ACT. Actuality and truth coincide; in fact, it is a logical truth that actuality and truth coincide. But it is not unanimous that they coincide. It is not actual that Mars is green, but it is true for Alf that Mars is green, so it is not unanimous that Mars is green if and only if it is actual that Mars is green.

Alf may say something that is true for Alf by uttering, “Mars is green if and only if it is actual that Mars is green.” But if so, the worldly operator Alf applies is not the actuality operator, but the *alien* operator: the one and only worldly operator that applies to exactly the propositions that are true for Alf. If we are convinced that some facts are false for Alf, and thus convinced that the actuality operator and the alien operator apply to different propositions, then we should regard the following claim as absurd:

ALF. It is unanimous that everything is true just if alien.

And ACT is no more plausible than ALF.

The second argument starts from the U-rigidity of truth for me: the claim that everything true for me is unanimously true for me. It then alleges that truth for me and truth coincide necessarily:

ME. It is necessary that everything is true just if true for me.

If both principles hold, then relativism and Modal Unanimity are inconsistent. (*Proof:* Suppose that p . Then, by ME and the U-rigidity of truth for me, Ump . By ME and Modal Unanimity, $U(p \leftrightarrow Mp)$. So, Up .)

Everyone should accept the U-rigidity of truth for me. Indeed, everyone should accept the U-rigidity of every individualized operator. What is true for an individual should not vary from individual to individual. But relativists who want to accept Modal Unanimity should reject ME without reservation.

If Modal Unanimity holds, then anything that could be true for anything could be true (*simpliciter*). It is true for Alf that Mars is green, and it is also true for Alf that it is not true for me that Mars is green. Hence, it is true for Alf that Mars is green if and only if it is not true for me that Mars is green. And relativists who want to accept Modal Unanimity should take that to entail that it is possible that Mars is green if and only if it is not true for me that Mars is green, *contra* ME.

Having noted these two arguments, a third remains salient. If Fundamental Unanimity and Fundamental Entailment both hold, then relativism and Modal Unanimity cannot both be true.⁴³ But relativists can and should reject Fundamental Entailment.

7 | THREE ARGUMENTS FOR FUNDAMENTAL ENTAILMENT

The relativist view I favor—the *relative laws view*—rejects Fundamental Entailment and accepts both Fundamental Unanimity and Modal Unanimity. To develop the view, I am going to consider three arguments for Fundamental Entailment that it must reckon with. One is the *argument from completeness*, which takes these two principles as premises:

Fundamental Completeness. Necessarily, the fundamental facts are complete.

Complete Entailment. Necessarily, some facts are complete only if they entail all of the facts.

One is the *argument from grounding*, which takes these two principles as premises:

Complementation. Necessarily, every nonfundamental fact is grounded in fundamental facts.

Grounding Entailment. Necessarily, if the A-facts are grounded in the B-facts, then the B-facts entail the A-facts.

The last is the *argument from metaphysical laws*, which takes these two principles as premises:

Metaphysical Determinism. Necessarily, the fundamental facts and the metaphysical laws together entail every fact.

Metanomic Necessitarianism. Necessarily, every metaphysical law is necessary.

We will have a pretty good sense of the relative laws view when we understand how it responds to these three arguments.

Before we can address the arguments from completeness and from grounding, we need to understand what potential relativity is, and before we can understand what potential relativity is, we need to discuss metaphysical laws. So I am going to begin with the argument from metaphysical laws.

8 | METAPHYSICAL LAWS

Metaphysical Determinism—the claim that, necessarily, the fundamental facts and the metaphysical laws together entail every fact—should be accepted. Natural laws can be indeterministic. The noninitial facts need not be entailed by the conjunction of the initial facts and the natural laws.⁴⁴ But metaphysical laws cannot be indeterministic. Metaphysical laws necessarily play a functional role, taking the fundamental facts as input, and outputting the nonfundamental facts.

Indeed, a case can be made that the intelligibility of the fundamental/nonfundamental distinction rests on Metaphysical Determinism. Our grip on what it is for a fact to be noninitial is not lost when we suppose that some noninitial facts are not entailed by the conjunction of the initial facts and the natural laws. But it is not clear that we retain our grip on what it is for a fact to be nonfundamental if we suppose that some nonfundamental facts are not entailed by the conjunction of the fundamental facts and the metaphysical laws.

Since the relative laws view accepts Metaphysical Determinism and rejects Fundamental Entailment, it rejects Metanomic Necessitarianism: It says that some metaphysical laws are contingent. It does not say that every metaphysical law is contingent. But since the relative laws view accepts Fundamental Unanimity, Modal Unanimity, and Metaphysical Determinism, it must say that some metaphysical laws are relative; and because the relative laws view accepts Modal Unanimity, it must say that every possibly relative metaphysical law is contingent. (About the converse claim—that every contingent metaphysical law is possibly relative—I remain, at least for now, agnostic.)

Other views that take metaphysical laws to be contingent include contingent metaphysical laws among the fundamental facts, much as anti-Humeans include contingent natural laws among the fundamental facts.⁴⁵ But the relative laws view does not. Say that a proposition is *quasi-necessary* if the fundamental facts are necessarily compossible with it. The relative laws view accepts:

Metanomic Quasi-Necessitarianism. Necessarily, every metaphysical law is quasi-necessary.

There is no distinction to draw between necessity and quasi-necessity if Fundamental Entailment holds, but the relative laws view rejects Fundamental Entailment.

The lynchpin of the relative laws view is the *inhabitation conditions* it builds into possible metaphysical laws. According to the relative laws view, each possible metaphysical law has some inhabitation condition necessarily, and each possible metaphysical law necessarily holds for all and only the individuals that satisfy its inhabitation condition.

The inhabitation conditions are always fundamentally specifiable. Say that a possible metaphysical law is *inhabited* by the individuals that satisfy its inhabitation condition, and say that the *inhabitation facts* are the facts specifying the inhabitants of each possible metaphysical law. Then, according to the relative laws view:

Fundamental Inhabitation. Necessarily, the fundamental facts entail the inhabitation facts.

Necessary metaphysical laws can be taken to have vacuous inhabitation conditions, since they necessarily hold for every individual. But every contingent metaphysical law must have some nonvacuous inhabitation condition.

To see the view in action, consider presentness. A proponent of the relative laws view who accepts relativism about presentness might posit a metaphysical law of presentness for each possible time, and might take inhabitation to be a matter of location. On the resultant view, for any possible time t :

- a. There is a possible metaphysical law that something is present just if it is t ; and
- b. Necessarily, the possible metaphysical law that something is present just if it is t holds for all and only the individuals located at t .

Every individual located at Presento, including Presento, itself, thus inhabit the possible metaphysical law that something is present just if it is Presento, and every individual located at Futuro, including Futuro, itself, thus inhabit the possible metaphysical law that something is present just if it is Futuro.

A proponent of the relative laws view who accepts color relativism might posit a possible metaphysical law for each possibly witnessed chromophysical generalization, and might take inhabitation to be a matter of perceptual dispositions. A chromophysical generalization is a universal statement connecting a possible intrinsic physical profile to a color. Let *being* ψ be some possible intrinsic physical profile; let *being* C be some color property; and say that the chromophysical generalization that everything ψ is C is *possibly witnessed* if its truth is compossible with something being ψ . On the resultant view, if the chromophysical generalization that everything ψ is C is possibly witnessed, then:

- a. There is a possible metaphysical law that everything ψ is C ; and
- b. Necessarily, the possible metaphysical law that everything ψ is C holds for all and only the individuals to whom ψ things appear C .

Ralf and I thus inhabit the possible metaphysical law that everything φ is red (and not green), and Alf inhabits the possible metaphysical law that everything φ is green (and not red).

The relative laws view has the aforementioned virtues of the relative necessities view. It delivers the desired emergentism, providing a way for there to be relativity at nonfundamental levels without corresponding relativity at the fundamental level. It also accounts for the counterfactual robustness of the propositions identified as relative necessities by the relative necessities view. A proposition is *metanomically necessary* if it is entailed by the metaphysical laws. The propositions taken to be relative necessities by the relative necessities view are taken to be relative metanomic necessities by the relative laws view.

Recalls these counterfactuals from above:

1. If there had been no human beings, Presento (still) would have been present.
2. If there had been no thought or consciousness, Presento (still) would have been present.
3. If there had been no human beings, everything φ (still) would have been red.
4. If φ things had appeared green to me, everything φ (still) would have been red.

5. If φ things did not appear red to anything, everything φ (still) would have been red.

Metanomic necessities have a distinctive counterfactual signature. If p is metanomically necessary and q is compossible with every metaphysical law, then p (still) would have been true had it been that q .⁴⁶ So the relative laws view predicts the truth of the counterfactuals above.

The relative laws view may even have an advantage over the relative necessities view with regard to counterfactuals. On the relative necessities view, the following counterfactuals have impossible antecedents:

1. If Futuro had been present, Presento would have been past.
2. If something φ had been green, then something φ would have been not red.

If counterfactuals with impossible antecedents are vacuous, then the relative necessities view wrongly predicts that (6) and (7) are vacuous.⁴⁷ But the same threat of vacuity does not confront the relative laws view, since the relative laws view deems the antecedents of (6) and (7) to be, although contrary to the metaphysical laws, possible.

But this point about vacuity and counterfactuals is at most a minor advantage. The main advantages of the relative laws view over the relative necessities view are the aforementioned two. The relative laws view is consistent with Modal Unanimity and does not forego the opportunity that Opportunity provides.

9 | POTENTIAL RELATIVITY AND ABSOLUTENESS

Having said a bit about metaphysical laws, we can turn to the distinction between relativity and potential relativity and the parallel distinction between unanimity and absoluteness.

Unanimity is an interesting notion. But we should want a notion of absoluteness distinct from unanimity, for at least two reasons.

First, unanimity is too sensitive to the happenstance of inhabitation. The relative fact that everything φ is red would have been unanimous if φ things had appeared red to everything. Every fact would have been unanimous if there had been just one individual. But we should want a notion of absoluteness that is not sensitive to the happenstance of inhabitation in this way.

Second, the relation between unanimity and truth is too loose. Unanimity is factive: Everything unanimous is true. But unanimity is not necessarily factive. Some propositions are compossible with the unanimity of their negation. In fact, we saw an example already, albeit obliquely:

5. If φ things did not appear red to anything, everything φ (still) would have been red.

The antecedent of (5) is compossible with the metaphysical laws, and the consequent is metanomically necessary, so (5) is true. But it would have been unanimously false that everything φ is red if φ things did not appear red to anything. So (5) entails:

8. If φ things did not appear red to anything, then it would have been true and unanimously false that everything φ is red.

No true counterfactual with a possible antecedent has an impossible consequent, so the consequent of (8) is possible: The proposition *that everything φ is red* could have been both true and

unanimously false. But we should want a notion of absoluteness that is necessarily factive. No proposition should be compossible with the absoluteness of its negation.

Hoping to understand absoluteness in terms of unanimity, one might propose that a proposition is absolute if it is true and not possibly relative. But that draws the line in the wrong place. The proposition *that everything φ is red and appears red to everything* is not possibly relative, but it would not have been absolute if φ things had appeared red to everything.

I think we should understand absoluteness, not in terms of unanimity, but in terms of metaphysical laws.

Some terminology: A *perspective* is a maximal collection of compossible metaphysical laws. An individual *inhabits* a perspective just if they inhabit each of its members. Since Metaphysical Determinism holds, the fundamental facts and a perspective together entail the actuality of some possible world. A possible world is *perspectivally available* if its actuality is entailed by the fundamental facts and some perspective, and a possible world is *inhabited* if it is actual for some individual.

Absoluteness stands to perspectivally available worlds as necessity stands to possible worlds. A proposition is *absolute* just if it is true at every perspectivally available world.

Potential relativity stands to absoluteness as contingency stands to necessity. A proposition is *potentially relative* just if either it or its negation is true but not absolute. The potentially relative propositions are the ones that vary in truth-value across perspectivally available worlds, and the potentially relative facts are the true potentially relative propositions.

I am going to help myself to analogs of the assumptions made above about the modal logic of necessity: I am going to assume that anything absolute is true; I am going to assume that anything absolutely implied by something absolute is absolute; and I am going to assume that, necessarily, what perspectivally available worlds there are is necessarily the same at every perspectivally available world. Each perspectivally available world is a possible world, so the worldly operator associated with each perspectivally available world is bivalent, in the sense of applying, for each proposition, either to the proposition or the negation of the proposition, and the worldly operator associated with each perspectivally available world is rigid, in the sense of applying necessarily whenever it applies.

Relativity and potential relativity are closely related because individuals are proxies for the inhabited worlds. A proposition is true for an individual just if it is true at the world inhabited by the individual. Relativity thus suffices for potential relativity. But if some perspectives are uninhabited, then a proposition can be both potentially relative and unanimous.

Once we see that a proposition can be both potentially relative and unanimous, we can see why absoluteness is not sensitive to the happenstance of inhabitation in the same way that unanimity is. The proposition *that everything φ is red* still would have been potentially relative if φ things had appeared red to everything; for it would have been, though true at every inhabited world, and hence unanimous, false at some perspectivally available worlds.⁴⁸

We also can see why absoluteness is, unlike unanimity, necessarily factive. Unanimity is factive because every unanimous proposition is true at every inhabited world, and it is a logical truth that the actual world is inhabited. But not every possible world is possibly inhabited; some possible worlds are necessarily uninhabited. The perspectivally available worlds necessarily agree about which worlds are inhabited, so a necessarily uninhabited world deems itself uninhabited. And that is why unanimity is not necessarily factive: If a proposition is true at w but false at every world that w deems inhabited, then w says that the proposition is true and unanimously false. But no possible world says that a proposition is true and false at every perspectivally available world

because every possible world deems itself perspectively available, so absoluteness is necessarily factive.

The distinction between unanimity and absoluteness helps us sharpen the threatening argument, appropriately strengthening it. Not only should we accept Fundamental Unanimity and Modal Unanimity, we should accept:

Fundamental Absoluteness. Necessarily, every fundamental fact is absolute.

Modal Absoluteness. Necessarily, every necessary fact is absolute.

Unanimous facts fail to be absolute only when they are unanimous just by virtue of some perspectives being uninhabited, and fundamental facts and necessary facts are never unanimous just by virtue of some perspectives being uninhabited. The threatening argument should be an argument, not for the impossibility of relative facts, but for the impossibility of potentially relative facts, and that is exactly what we get when we switch from unanimity to absoluteness. Fundamental Absoluteness and Modal Absoluteness together entail:

Potential Threat. Necessarily, if the A-facts are potentially relative, then the fundamental facts do not entail the A-facts.⁴⁹

And Fundamental Entailment and Potential Threat together entail that potentially relative facts are impossible.

The distinction between unanimity and absoluteness also helps us sharpen Opportunity, appropriately weakening it. The fundamental facts necessarily entail the absolute facts, so the A-facts cannot be absolute if they are not entailed by the fundamental facts. But facts can be both potentially relative and unanimous, so the A-facts could be unanimous despite not being entailed by the fundamental facts, *contra* Opportunity. The truth in the vicinity of Opportunity is:

Potential Opportunity. Necessarily, if the A-facts are not entailed by the fundamental facts, then the A-facts are potentially relative.⁵⁰

Potential Threat and Potential Opportunity together characterize absoluteness and potential relativity (up to strict equivalence). Necessarily, a fact is absolute just if it is entailed by the fundamental facts. Necessarily, a fact is potentially relative just if it is not entailed by the fundamental facts.

10 | COMPLETENESS

The relative laws view rejects Fundamental Entailment, and thus recognizes two notions of completeness. There is, first, the weaker notion: Necessarily, some facts are *fundamentally complete* just if they entail the fundamental facts. There is, then, the stronger notion: Necessarily, some facts are *alethically complete* just if they entail all of the facts.

Recall that the argument from completeness takes the following two principles as premises:

Fundamental Completeness. Necessarily, the fundamental facts are complete.

Complete Entailment. Necessarily, some facts are complete just if they entail all of the facts.

Each principle, considered alone, can seem almost trivial, and that is because each principle trivially holds for one of the two notions. Fundamental Completeness trivially holds of fundamental completeness, and Complete Entailment trivially holds of alethic completeness. But the collapse of the distinction between fundamental and alethic completeness which the two principles together entail, once we hold the notion of completeness fixed, is not trivial, and the argument from completeness does nothing to motivate the alleged collapse.

Sophisticated arguments are not always needed, of course, and a flatfooted argument for collapse is salient. We should not accept any distinction that we cannot comprehend, and one might say that we have no idea what it would be for some facts to be fundamentally complete without also being alethically complete. But this flatfooted argument can be overcome. One useful tool for doing so is the metaphor of genesis.

The fundamental facts are often envisaged as the facts fixed by a god in the act of sublunary creation. Of course, there might not be any gods. Even if there are, there might not be any act of sublunary creation. But the fundamental facts must be, in some sense, the fundamentals from which the sublunary world is built,⁵¹ so the metaphor of genesis is a useful one.⁵²

One might think that the sublunary world cannot have any facts not entailed by the facts fixed in sublunary creation. But that thought, though a natural one, is mistaken.

First illustration: The sublunary world can have contingent facts even if every fact fixed in sublunary creation is necessary. Imagine the creation of a Lewisian pluriverse.⁵³ From the (perhaps impossible) perspective of the divine creator, there is no fact about how many spatiotemporal dimensions there are. There are just necessary facts, including the necessary facts that there four spatiotemporal dimensions at this possible world and eight at that possible world. But contingency emerges from within. At any possible world there is a fact about how many spatiotemporal dimensions there are, over and above the necessary facts about how many spatiotemporal dimensions there are at each possible world, and that additional fact is contingent.⁵⁴

The key to creating contingency just by fixing necessary facts is building nonvacuous inhabitation conditions into possible metaphysical laws. For any possible world w , the divine creator fixes two necessary facts:

- a. There is a possible metaphysical law that everything true at w is true; and
- b. The possible metaphysical law that everything true at w is true holds for all and only the individuals that are part of w .

Having fixed these necessary facts, the divine creator can make it contingent how many spatiotemporal dimensions there are just by fixing the necessary facts that there are four spatiotemporal dimensions at this possible world and eight at that possible world.

The facts fixed in the creation of the sublunary pluriverse, the fundamental facts, are complete in an important sense. They are fundamentally complete. No facts besides them need to be fixed for the pluriverse to be created. But they are not alethically complete. All of them are necessary facts, and there are contingent facts, and no necessary facts entail any contingent fact.

Second illustration: There can be potentially relative facts even if all of the facts fixed in sublunary creation are absolute. Suppose that the physical facts are absolute facts that entail all of the absolute facts, and consider color relativity. From the (perhaps impossible) perspective of the divine creator, there is no fact about what color Mars is. There are just absolute facts, including the absolute facts that Mars is red for Ralf and green for Alf. But relativity emerges from within.

For any individual there is a fact about what color Mars is, over and above the absolute facts about what color Mars is for each individual, and that additional fact is potentially relative.

The key to creating relativity just by fixing absolute facts is building nonvacuous inhabitation conditions into possible metaphysical laws. For each possibly witnessed chromophysical generalization that everything ψ is C, the divine creator fixes two necessary, and hence absolute, facts:

- a. There is a possible metaphysical law that everything ψ is C; and
- b. The possible metaphysical law that everything ψ is C holds for all and only the individuals to whom ψ things appear C.

Having fixed these absolute facts, the divine creator can make it relative what color Mars is just by making Mars appear red to Ralf and green to Alf. The fact that Mars appears red to Ralf is absolute, as is the fact that Mars appear green to Alf. So if the physical facts are absolute facts that entail all of the absolute facts, then the divine creator can make it relative what color Mars is just by fixing the physical facts.

The facts fixed in sublunary creation, the fundamental facts—some subset of the physical facts, as I envisage them—are complete in an important sense. They are fundamentally complete. No facts besides them need to be fixed for the sublunary world to be created. But they are not alethically complete. All of them are absolute facts, and there are potentially relative facts, and no absolute facts entail any potentially relative fact.

Fundamental and alethic completeness come apart only if potentially relative facts are possible. I have not established that potentially relative facts are possible, so I have not established that fundamental and alethic completeness can come apart. But these examples overcome the flatfooted argument for collapse. One can understand what it would be for some facts to be fundamentally complete without also being alethically complete.

It is natural to wonder whether any sophisticated argument for collapse succeeds, given the failure of the flatfooted argument, and that brings us to the argument from grounding.

11 | GROUNDING

The argument from grounding is not the only sophisticated argument for collapse, of course. But seeing how the relative laws view responds to it will give us some sense of how the relative laws view responds to others.

Recall that the argument from grounding takes the following two principles as premises:

Complementation. Necessarily, every nonfundamental fact is grounded in fundamental facts.

Grounding Entailment. Necessarily, if the A-facts are grounded in the B-facts, then the B-facts entail the A-facts.

Complementation and Grounding Entailment together entail Fundamental Entailment, and thus together entail the collapse of fundamental and alethic completeness.

The relative laws view has been developed without appeal to ground. Indeed, as I said above, the relative laws view can be developed without any hyperintensional distinctions.⁵⁵ A proponent

of the relative laws view thus could deny both principles for reasons of ideology, maintaining that the notion of ground is not in good working order. (An intensional approach to metaphysics has its appeal, after all.) But even if a proponent of the relative laws view is ecumenical and indulges the ideology of ground, they still should deny both of the principles above.

Grounding Entailment can be thought of as the conjunction of the following two principles:

Grounding Determinism. Necessarily, if the A-facts are grounded in the B-facts, then the metaphysical laws and the B-facts together entail the A-facts.

Metanomic Necessitarianism. Necessarily, the metaphysical laws are necessary.

The relative laws view accepts Grounding Determinism (if it countenances ground). But as we have already seen, it rejects Metanomic Necessitarianism. It says that some metaphysical laws are possibly relative, and it says that every possibly relative metaphysical law is contingent.

Since Grounding Determinism holds, Grounding Entailment holds for absolute grounding. If it is an absolute fact that the A-facts are grounded in the B-facts, then the B-facts must entail the A-facts. But relative metaphysical laws induce relative grounding. For Ralf, Mars being φ grounds Mars being red. For Alf, Mars being φ grounds Mars being green. These two facts together would entail the absurd claim that Mars is both red and green if Modal Absoluteness and Grounding Entailment both held. But Grounding Entailment does not hold, and Modal Absoluteness and Grounding Determinism do not lead to the same absurdity. The fact that Mars is φ together with the possible metaphysical laws that hold at the world that Ralf inhabits entail that Mars is red (and not green), and the fact that Mars is φ together with the possible metaphysical laws that hold at the world that Alf inhabits entail that Mars is green (and not red).

The relative laws view also rejects Complementation, but in doing so it is not alone. Complementation is inconsistent with Physical Fundamentality. The metaphysical laws are neither among the physical facts, nor grounded in the physical facts.⁵⁶ So anyone who think that the physical facts might exhaust the fundamental facts must reject Complementation.

The truth in the vicinity of Complementation employs a distinction drawn by Shamik Dasgupta.⁵⁷ On the one hand, there are facts that are fit to be grounded: the *substantive* facts. On the other hand, there are facts—such as the holding of a possible metaphysical law—that are not fit to be grounded: the *autonomous* facts. Instead of Complementation we should accept:

Substantive Complementation. Necessarily, every substantive nonfundamental fact is grounded in fundamental facts.

According to the relative laws view, some facts are potentially relative, but no fundamental facts are potentially relative. Grounding Entailment and Complementation are inconsistent with the relative laws view because, given Modal Absoluteness, they together entail that some fundamental facts are potentially relative if some facts are potentially relative. But Grounding Determinism and Substantive Complementation are consistent with the relative laws view. Even if the color facts are potentially relative, some subset of the physical facts may be such that, at every perspectively available world, they ground, and hence metanomically necessitate, every substantive fact that is not among them.

The relative laws view does have a surprising consequence here that is worth noting. According to the relative laws view, the holding of a possible metaphysical law is sometimes contingent and always autonomous. The relative laws view thus says that some autonomous facts are contingent.

On reflection, however, that seems exactly right. We misunderstand what it is to be a metaphysical law when we ask why a possible metaphysical law holds. Inhabitation can be explained. I inhabit the possible metaphysical law that everything φ is red because φ things appear red to me. Had φ things appeared green to me, I instead would have inhabited the possible metaphysical law that everything φ is green. But nothing about me explains why it is a metaphysical law that everything φ is red. Had I not existed, it (still) would have been a metaphysical law that everything φ is red. Had φ things appeared green to me, it (still) would have been a metaphysical law that everything φ is red. Causal laws are not fit to be caused, and metaphysical laws are not fit to be grounded. The holding of a metaphysical law is always autonomous. Yet it could have been that everything φ was green. Indeed, it could have been a metaphysical law that everything φ is green. So some autonomous facts are contingent.⁵⁸

12 | CONCLUSION

Fundamental Entailment collapses the distinction between fundamental and alethic completeness. Alethic completeness is the completeness of supervenience. If some facts entail all of the facts, then they are a supervenience basis for the rest of the facts.⁵⁹ Fundamental completeness is the completeness of comprehensive isms. Phenomenalism is the thesis that the phenomenal facts entail the fundamental facts. Physicalism is the thesis that the physical facts entail the fundamental facts. The widespread belief that comprehensive isms are (or anyway entail) supervenience theses is a consequence of the widespread acceptance of Fundamental Entailment. If Fundamental Entailment holds, then alethic completeness and fundamental completeness are strictly equivalent, so the completeness of supervenience is strictly equivalent to the completeness of comprehensive isms. But Fundamental Entailment fails if potentially relative facts are possible. Some facts entail the fundamental facts just if they entail the absolute facts. No absolute facts entail any potentially relative facts, but some absolute facts entail the absolute facts. So if potentially relative facts are possible, then, *contra* Fundamental Entailment, some facts can entail the fundamental facts without entailing all of the facts.

Take color relativism, for example. If color relativism holds, then the physical facts do not entail the color facts, and thus do not entail all of the facts. But it is consistent with color relativism that the physical facts entail the fundamental facts, so color relativism is consistent with physicalism.

The consistency of color relativism and physicalism takes some getting used to because possible worlds at which color relativism and physicalism both hold falsify familiar world duplication tests for physicalism. Take Frank Jackson's proffered test, for example:

Physicalism is true at w just if any minimal physical duplicate of w is a duplicate of w *simpliciter*.⁶⁰

If color relativism and physicalism both hold at the actual world, then some minimal physical duplicates of the actual world are not duplicates of the actual world *simpliciter*. The world that is actual for Alf is a minimal physical duplicate of the actual world, for example, but it differs from the actual world chromatically, and thus is not a duplicate *simpliciter*.

But it is not surprising that potentially relative facts would problematize world duplication tests for physicalism. World duplication tests aim to test the alethic completeness of physical facts. Their probativeness with regard to physicalism is thus predicated on the truth of Fundamental Entailment, and Fundamental Entailment fails if potentially relative facts are possible.

Physicalism does not require that the physical facts be alethically complete. What it requires is that the physical facts be fundamentally complete. If one wants a duplication test for physicalism, one should focus, not on worlds, but on orbits. The *perspectival orbit* around w is the possible worlds that w deems perspectivally available. Adapting Jackson's proffered test, we have:

Physicalism is true at w just if the perspectival orbit around any minimal physical duplicate of w is a duplicate of the perspectival orbit around w *simpliciter*.

Orbit duplication tests aim to test the fundamental completeness of the physical facts, so they are not problematized by potentially relative facts. If color relativism and physicalism both hold at the actual world, then the perspectival orbit around any minimal physical duplicate of the actual world is a duplicate of the perspectival orbit around the actual world *simpliciter*. (Orbit duplication tests have the added benefit of reducing to world duplication tests if potentially relative facts are impossible.)

Every fact not entailed by the fundamental facts is potentially relative, so one can argue that some facts are potentially relative by arguing that they are not entailed by the fundamental facts. My primary focus has been the case of color. I think the argument for color relativism that via Chromophysical Contingency and Physical Fundamentality is strong. But the argument has currency in other domains, too. One could defend the potential relativity of tensed facts by arguing that the tensed facts are not entailed by the fundamental facts. One could defend the potential relativity of oriented facts by arguing that the oriented facts are not entailed by the fundamental facts. Loosely following Simon Blackburn,⁶¹ one could defend the potential relativity of moral facts by arguing that the moral facts are not entailed by the fundamental facts. The desire to say that some facts are not entailed by the fundamental facts is, as I have said, not uncommon.⁶²

ENDNOTES

¹ See Tahko (2018) and citations therein.

² I assume that the fundamental facts necessarily entail that they are all of the fundamental facts, and I assume that the fundamental facts are necessarily closed under Boolean operations. I thus take Fundamental Entailment to be strictly equivalent to **Fundamental Supervenience**: Necessarily, every fact globally supervenes on the fundamental facts. If we accept quantification into sentential position and assume that the fundamentality operator, F , is factive, then Fundamental Entailment can be formalized as follows: $\forall p \Box(p \rightarrow \exists q(Fq \ \& \ \Box(q \rightarrow p)))$. For discussion of the relation between entailment and global supervenience, see McLaughlin and Bennett (2018).

³ I assume that the A-facts are closed under Boolean operations.

⁴ I assume that the B-facts—the putatively subvening facts—necessarily entail that they are all of the B-facts, and I assume that the B-facts are closed under Boolean operations. I thus take AB-Contingency to be strictly equivalent to the claim that the A-facts do not globally supervene on the B-facts.

⁵ Since the B-facts necessarily entail that they are all of the B-facts, B-Fundamentality is strictly equivalent to the claim that the fundamental facts globally supervene on the B-facts.

⁶ See e.g. Bacon (2018).

⁷ See e.g. Dasgupta (2021).

⁸ Here I agree with Rabin (2020).

⁹ For discussion of several views of fundamentality, including views that take it as primitive, see Tahko (2018) and citations therein

¹⁰ For an overview of formulations and challenges to physicalism, see Stoljar (2017).

¹¹ For an overview of qualitativism and its cousin, anti-haecceitism, see Cowling (2016).

¹² The part of physics most concerned with the fundamental facts is called fundamental physics, even outside of philosophical contexts. Physics—the science most concerned with fundamental acts—is often distinguished as a fundamental science, even outside of philosophical contexts. See e.g. Ney (2019).

¹³ Here I follow Fine (2001), as opposed to Sider (2011).

- ¹⁴ I think that truth supervenes on being, so I would be fine identifying facts with obtaining states of affairs, *à la* Armstrong (1997).
- ¹⁵ I assume the validity of *modus ponens*, but I do not assume the rule of necessitation. Contingent logical truths—e.g., $\forall p(@p \leftrightarrow p)$ —will be an important part of view developed below. Some well-behaved restriction of the rule necessitation may hold, however. See Crossley and Humberstone (1977).
- ¹⁶ Since every individual is fragile, every individualized operator is rigid, in the sense of applying necessarily whenever it applies.
- ¹⁷ Again, I reject the rule of necessitation. Relative logical truths—e.g. $\forall p(Mp \leftrightarrow p)$ —will be an important part of the view developed below. Some well-behaved restriction of the rule of necessitation may hold, however. See note 15.
- ¹⁸ Saying what an agent's perceptual dispositions are is not entirely straightforward; see e.g. Byrne and Hilbert (2017).
- ¹⁹ It is controversial whether spectrum inversion of this sort is possible; see Byrne (2020) and citations therein. But it is uncontroversial that there is color perception variation, and the same point could be made with less radical variation.
- ²⁰ Here I part ways with fellow color relativists, including Brogaard (2010; 2011; 2012) and Egan (2006a; 2006b; 2010). I say that possible worlds determine the extensions of colors, so I say that the world that is actual for Ralf is distinct from the world that is actual for Alf. (I am thus—like Hare (2009), Rovane (2013), and Fine's (2005) internal relativist—a “multimundialist”.) Brogaard and Egan say that the same world is actual for Ralf and Alf, so they deny that each possible world determines the extensions of colors. They thus deny that truth on supervene being. I take that to be one argument against their “centered” approach to color relativism. A second argument: We want color properties to embed under modal operators and in counterfactuals, but it is not clear that centered-world propositions can. A third argument: We want the conjunction of the proposition *that object o is color C* and the proposition *that there is nothing to which o is disposed to look C* to be true somewhere in logical space. But if the proposition *that object o is color C* is true at a centered world *c* just if *o* is disposed to look *C* to the individual that occupies *c*, then it is not clear that the proposition *that object o is color C and there is nothing to which o is disposed to look C* is true at any centered world. (On the multimundial view I favor, propositions like these are true at necessarily uninhabited worlds; see §10). For more, see Spencer (2016: 449).
- ²¹ I use number of fingers, but the same point could be made with color. (And really, the point *should* be made with color. If I am a fragile individual and the number of fingers I have is decided by the fundamental facts, then every possible world agrees about how many fingers I have. But if color relativism is true, then possible worlds disagree about what color my hair is, even if I am fragile individual.)
- ²² Cohen (2009) defends color relationalism: the view that accepts the unanimous facts that Mars is red for Ralf and green for Alf, but denies that there is any (relative) fact about what color Mars is, over and above those unanimous facts. Of course, not everyone agrees that Mars is different colors for different individuals. For a helpful overview of the metaphysics of colors, see Maund (2019).
- ²³ See e.g. Fine (2006).
- ²⁴ The literature on truth relativism and faultless disagreement is large. For a helpful overview, see Baghramian and Carter (2021).
- ²⁵ See e.g. Brogaard (2011; 2012: §8.1) and Egan (2006b). If colors are individuated by how they look (cf. Spencer (2016: 452-3)), then the color that Alf experiences Mars as is the color that Ralf experiences grass as; and it is very plausible that nothing can be both the color that Ralf experiences Mars as and the color that Ralf experiences grass as, *pace* Kalderon (2007).
- ²⁶ If we accept quantification into sentential positions, then Fundamental Unanimity and Modal Unanimity can be formalized as follows: **Fundamental Unanimity.** $\forall p \Box (Fp \rightarrow Up)$. **Modal Unanimity.** $\forall p \Box (\Box p \rightarrow Up)$
 Fundamental Unanimity and Modal Unanimity together entail that, necessarily, every fact entailed by the fundamental facts is unanimously implied by unanimous facts. Anything unanimously implies by something unanimous is unanimous, so it follows that, necessarily, every fact that is entailed by the fundamental facts is unanimous. By contraposition we get Threat: $\forall p \Box ((p \& \sim Up) \rightarrow \sim \exists q (Fq \& \Box (q \rightarrow p)))$.
- ²⁷ One could defend a relativism about the existence of mathematical object that implied a relativism about mathematical truths.
- ²⁸ Temporality is not a form of relativism if presentism is true. The import of this is brought out by Lewis (1986: 202-4).

- ²⁹ See e.g. MacFarlane (2014).
- ³⁰ Hellie explores a raging view of this sort in unpublished work on color and McTaggart. One could read Hare (2009) as a defense of a raging view of this sort, not with regard to color but with regard to an alleged experience-like property of presentness.
- ³¹ The unanimity of Fundamental Entailment should be accepted even by those who reject Modal Unanimity.
- ³² Proponents of the relative necessities view include Fine (1977), Kaplan (1989), and Bacon (2018).
- ³³ Here I tacitly assume that the fundamental facts are some subset of the physical facts.
- ³⁴ Cf. Craig (1975: 1) and Kment (2006: 239).
- ³⁵ Cf. Dorr and Goodman (2020: 633).
- ³⁶ Rayo puts the connection between metaphysical impossibility and absurdity front and center: “Going beyond metaphysical possibility is not a matter of going beyond a given limit of strictness: it is a matter of lapsing into *absurdity*” (2013: 49, emphasis original). Also see Rosen (2006: 23).
- ³⁷ Cf. Fine (1994; 1995) and Rosen (2006).
- ³⁸ For a helpful overview on the debate, see Berto and Jago (2018).
- ³⁹ The idea that metaphysical necessity is the strongest objective necessity is fairly familiar; see e.g. Rosen (2006) and Williamson (2015).
- ⁴⁰ Cf. Dorr and Goodman (2020).
- ⁴¹ Cf. Dorr and Goodman (2020: 642-4).
- ⁴² I.e., $\forall pU(p \leftrightarrow @p)$.
- ⁴³ Cf. Dorr and Goodman (2020: 647-8).
- ⁴⁴ Pace Bader (2021) and Emery (2019).
- ⁴⁵ See e.g. Rosen (2006).
- ⁴⁶ Cf. Lange (2005) and Kment (2006; 2014). Possible metaphysical laws thus pattern like conventions that are not our own in the semantics developed by Einheuser (2006).
- ⁴⁷ A view that predicts that (6) and (7) are vacuous is wrong because it predicts the truth of false counterfactuals, such as:
- (6*) If Futuro had been present, Futuro would not have been present.
- (7*) If something φ had been green, then nothing φ would have been green.
- ⁴⁸ Necessarily, the perspective that is true for Alf is true at some perspectively available world, and the proposition *that something is φ and everything φ is red* is not compossible with the perspective that is true for Alf.
- ⁴⁹ If we symbolize absoluteness with ‘A’, then Potential Threat can be formalized as follows: $\forall p \Box((p \ \& \ \sim Ap) \rightarrow \sim \exists q(Fq \ \& \ \Box(q \rightarrow p)))$.
- ⁵⁰ Potential Opportunity can be formalized as follows: $\forall p \Box((p \ \& \ \sim \exists q(Fq \ \& \ \Box(q \rightarrow p))) \rightarrow \sim Ap)$.
- ⁵¹ Cf. Bennett (2017).
- ⁵² As attested by its prevalence; see Tahko (2018) and citations therein.
- ⁵³ This pluriverse is modeled on the modal realism defended by Lewis (1986), but I do not say that the pluriverse here described is one Lewis would defend.
- ⁵⁴ In a similar spirit, Amijee (2021) uses a Lewisian pluriverse to argue that contingent facts can be explained by necessary facts. I reject Amijee’s thesis. I deny that necessary facts can explain contingent facts. But I do think that necessary facts can be fundamentally complete, even if there are contingent facts.
- ⁵⁵ Here is a characterization of the distinction between absolute and potentially relative facts without appeal to hyperintensional distinctions. A proposition is metanomically necessary at world w just if it is true throughout the sphere of metanomic necessity around w , where the sphere of metanomic necessity around w is (I will assume) the widest sphere around w besides the sphere of metaphysical necessity. A proposition is a perspective at world w just if it is the strongest metanomically necessary proposition that holds at w . Any proposition that is a perspective at any world is a perspective. Necessarily, a fact is absolute fact if it is compossible with every perspective. Necessarily, a fact is potentially relative if it is not compossible with every perspective.
- ⁵⁶ For a sustained argument that the metaphysical laws are not grounded in the physical facts, see Dasgupta (2014: 571-5).
- ⁵⁷ Cf. Dasgupta (2014; 2016).
- ⁵⁸ Pace Dasgupta, who says, “if a fact is contingent—if it obtains but might not have—then surely the question of why it obtains can legitimately be raised” (2016: 393).

- ⁵⁹ Some facts can be a supervenience basis without entailing all of the facts if they falsify certain closure properties; see McLaughlin and Bennett (2018).
- ⁶⁰ Cf. Jackson (1993). Chalmers (1996) offers a related world duplication test: Physicalism is true at w just if any physical duplicate of w is a positive duplicate of w . Potentially relative facts make trouble for Chalmers' test in the same way they make trouble for Jackson's.
- ⁶¹ Cf. Blackburn (1971; 1985).
- ⁶² Many of these thoughts emerged nascently in my dissertation. Thanks to my advisors, Shamik Dasgupta, Mark Johnston, Boris Kment, and, especially, Gideon Rosen. Thanks also to Mark Balaguer, Nathaniel Baron-Schmitt, David Builes, Alex Byrne, Andrew Cortens, Rebecca Chan, Brian Cutter, Andreas Ditter, Matt Duncan, Nina Emery, Martin Glazier, Justin Khoo, Ned Markosian, Michaela McSweeney, Michele Odienseas Impagnatiello, Adam Pautz, Michael Raven, Kate Ritchie, Jeff Russell, Bernhard Salow, Jonathan Schaffer, Mallory Webber, Quinn White, Xinhe Wu, Steve Yablo, those who attended a presentation of this paper at the Theoretical Philosophy Workshop at the University of Chicago in 2020, and those who attended a presentation of this paper at the MIT-ing of the Minds in 2021.

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