HUME-INSPIRED METAPHYSICS

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This dissertation focuses on David Lewis’s Patchwork Principle. That principle says, very roughly, that scenarios that are “patched” together from other possible scenarios are themselves possible. Thus, there are no metaphysically necessary connections between distinct things. More broadly, my dissertation is concerned with the many components of Lewis’s metaphysical system which are inspired by Hume’s claim that the world’s contents are “entirely loose and separate.” I first show that if one makes certain natural assumptions, the Patchwork Principle implies the rest of those Hume-inspired components. It particular, it appears to imply that causal, nomic, and temporal-direction relations are all extrinsic (and always extrinsic to their bearers), and that the causal and nomic relations globally supervene on the non-causal non-nomic properties and relations. Thus, Lewis’s set of metaphysical views is systematic not only insofar as many of its members are inspired by Hume’s denial of necessary connections, but in the more profound way that its least contentious member appears to imply many of its more contentious members: it seems to present us with a stark dilemma, a dilemma about whether to accept or reject Lewis’s entire Humean system.

Such a dilemma would be difficult indeed. On the one hand, I go on to offer an argument for the Patchwork Principle, an argument which seems as compelling as arguments get in this area. On the other hand, I also argue that the Patchwork
Principle’s apparent implications are untenable, because they are inconsistent with the existence (or even the possibility) of conscious beings like ourselves. The dilemma is thus a conundrum.

The crux of my solution to this conundrum (and dilemma) is that the apparent implications of the Patchwork Principle are merely apparent, since one of the “very natural assumptions” I made in arguing for those implications – that there can be concrete objects that do not share any parts – is false. Indeed, my solution assumes that of necessity, any two concrete objects overlap. Thus, while the Patchwork Principle is maintained, it is emptied of its content. And Hume’s claim that the world’s contents are “entirely loose and separate,” along with several components of Lewis’s metaphysical system which are inspired by it, are shown to be far wide of the mark.
To Chaya

With Love, Admiration, and Much Appreciation
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David Hume concludes his *Enquiry Concerning Human Understanding* with the following injunction:

If we take into our hand any volume; of divinity or school metaphysics, for instance; let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Consign it then to the flames: For it can contain nothing but sophistry and illusion. (1777, 123)

It is therefore no doubt ironic that Hume’s philosophy has served as an inspiration for large chunks of one of the finest metaphysical systems to have been constructed in the latter half of the twentieth century. The metaphysical system to which I refer is David Lewis’s, and it comprises claims about modality, causation, laws of nature, ontology, composition, and persistence. To be sure, not all of it can be seen as Hume-inspired, but much of it can. As Lewis himself notes in his introduction to the second volume of his collected papers,

Many of the papers, here and in Volume I, seem to me in hindsight to fall into place within a prolonged campaign on behalf of the thesis I call “Humean Supervenience”...Humean Supervenience is named in honor of the greater denier of necessary connections. It is the doctrine that all there is to the world is a vast mosaic of local matters of particular fact. (1986a)

Lewis here invokes a striking image of the world as a vast mosaic, an image which makes vivid Hume’s claim that “all events seem entirely loose and separate...they seem conjoined but never connected” (1777, 58). But that claim, and certainly Lewis’s image, can be made precise in a variety of ways. It seems to me that the
component theses of Lewis’s system can each be seen as a more careful and precise articulation of Hume’s claim.

My dissertation will focus on one of these articulations: the so-called ‘Patchwork Principle’, which is introduced by Lewis (1986b, §1.8) as a principle about the extent of modal space – about which states of affairs are metaphysically or intrinsically possible – and which is one of the least contentious components of Lewis’s system. It says, very roughly, that scenarios that are “patched” together from other possible scenarios are themselves possible, and a scenario obtained from another by eliminating some things in the latter is itself possible. Thus, there are no metaphysically necessary connections between distinct things. But what has not been noticed, and what I argue in the second chapter of this dissertation, is that making certain natural assumptions, the Patchwork Principle implies the other, much more controversial articulations of Hume’s claim that make up much of Lewis’s system. Lewis’s set of metaphysical views is systematic not only insofar as many of its members are inspired by a shared commitment to Hume’s denial of any necessary connections, but in the more profound way that its least contentious member appears to imply many of its more contentious members: it seems to present us with a stark dilemma, a dilemma about whether to accept or reject Lewis’s entire Humean system. So while this dissertation focuses on the Patchwork Principle, it deals more broadly with the question of how to react to the stark dilemma which we seem to confront.

Chapter One: In Chapter One, I home in on the Patchwork Principle that will be the focus of the remainder of the dissertation. In the process, I confront several decision points: should the Patchwork Principle guarantee that I could exist without you, or just that an intrinsic duplicate of me could exist without an intrinsic duplicate of you? Should the Patchwork Principle guarantee that there could be no numbers? Should the Patchwork Principle guarantee merely that the patched-together things
can co-exist, or that they can stand in some richer and more specific arrangement? Should the Patchwork Principle guarantee that it’s possible for something like you to exist without there being any singleton set whose member is just like you? At each of these decision points, I will try to ensure two things: first, that no resultant Patchwork Principle obviously guarantees the possibility of a situation that is uncontroversially impossible; and second, that every resultant Patchwork Principle is adequately Humean. Along the way, I also discuss and define a family of terms having to do with intrinsicality.

Chapter Two: In Chapter Two, I discuss the implications of the Patchwork Principle. Others have recognized several of these implications, but for the most part they have focused on those implications that say such-and-such situation is possible. But that is only one sort of implication that the Patchwork Principle has. I spend the bulk of this chapter arguing that if one makes certain very natural assumptions, the Patchwork Principle implies several important theses that say such-and-so property/relation is extrinsic (and extrinsic to everythings that instantiates it), and consequently, the pattern of instantiation of those properties/relations is settled by the pattern of instantiation of all other properties/relations. In particular, I argue that causal, nomic, and temporal-direction relations are all extrinsic (and extrinsic to any things that instantiate them), and hence their pattern of instantiation is determined by the pattern of instantiation of all the other properties. Those latter theses are core Humean components of Lewis’s system: thus, the arguments in this chapter show that if one makes certain very natural assumptions, the Patchwork Principle implies the other, much more controversial articulations of Hume’s claim that make up much of Lewis’s system.

Chapter Three: The conclusion of Chapter Two invites a natural follow-up question: if the Patchwork Principle is so strong, why believe it? In Chapter Three, I examine two arguments on its behalf. The first argument, which I call “The Ar-
argument from Imaginability," derives from Hume’s own writing on the subject, and has as its central premise a certain thesis about the link between imaginability and possibility. I examine different versions of the argument, and find them wanting. The second argument, which I call “The Argument from Mystery,” derives from a few brief remarks from Lewis, and has as its central premise the thesis that truths about whether a certain state of affairs is necessary cannot be brute. I develop this argument and conclude that it is quite compelling.

Chapter Four: In Chapter Four, however, I argue that the apparent implications of the Patchwork Principle – those theses about the extrinsicness of causal and temporal ordering relations, which I argued in Chapter Two seem to be implied by the Patchwork Principle – are untenable. They are untenable because they rob the world of the intrinsic structure that is needed to support conscious beings like ourselves. More exactly, conscious beings like ourselves instantiate so called phenomenal properties, properties which I argue are intrinsic. But, I argue, their instantiation requires certain causal and temporal-direction facts to hold. But then causal and temporal-direction relations are not extrinsic to everything after all.

Chapter Five: Thus, we are left with a conundrum: the conclusion of Chapter Three is that there is a compelling argument for a principle, which (given the arguments of Chapter Two) apparently implies certain theses that are (per the conclusion of Chapter Four) untenable. In Chapter Five, I propose a solution to this conundrum. The crux of the solution is that the apparent implications for which I argue in Chapter Two are merely apparent, since one of the “very natural assumptions” I made in Chapter Two is false. To be sure, it is an assumption that most philosophers would loathe to give up; thankfully, I am not one of those philosophers.

Before I turn to my topic proper, I want to get a few “metaphysical preliminaries” out of the way. In order to simplify the discussion, I assume two controversial onto-
logical theses. (One can’t discuss everything at once.) In particular, I will assume (1) that there are events and (2) that there are spacetime regions. I am fairly confident that these assumptions play no substantive role in my discussion. Indeed, I am fairly confident that event-deniers and relationalists about spacetime could recast what I say in terms that are friendly to their views. But I have not verified that this is the case. On the other hand, I have not assumed Lewis’s (1986b) possibilism – the view that there exist non-actual things – although it would have greatly simplified my discussion. Indeed, I have gone to great lengths to frame almost all of what I say in a way acceptable to the actualist.¹ The reason for this discriminatory treatment is just that possibilism is much less plausible than event realism and spacetime substantivalism: if it turned out that what I said depended essentially on the truth of possibilism, I’d probably retract what I said. Not so if it depended on event realism or spacetime substantivalism.

I assume two other controversial ontological theses, and not merely in order to simplify discussion: I assume (1) that there are abstracta, like properties, relations, and propositions, and (2) that there are impure sets and sequences.² The reason I make the latter assumption is that I see no other way to make sense of relations that are not, as we might say, permutation indifferent. Some relations are permutation-indifferent. If they hold between some things ordered in one way, then they hold between those things ordered in any way. (In the case of two-place relations, these are the symmetric ones.) But other relations fail to be permutation indifferent, or at least so it seems. (Dorr (2004) argues that contrary to appearances, there are no

¹Almost all of what I say; in a few cases, I allow myself the liberty of writing as a possibilist, but I gesture at an actualist-kosher translation. See nt. 37.

²Indeed, with respect to the latter assumption, it would seem that I really only need to assume the existence of impure sequences. But as I understand the term ‘sequence’, every multi-term sequence is just a special sort of set.

I remain neutral here on the nature of abstracta, and for example, whether it is possible for a property to exist uninstantiated. See §1.5.
such relations. I’d prefer not to assume that.) The complication presented by these
apparent relations is that it makes no sense to speak of them being instantiated by
some things; and so it’s hard to see how it can make sense to speak of them at all. If
Harry loves Lisa but Lisa does not love Harry, do Harry and Lisa (who are identical
of course with Lisa and Harry) instantiate the relation being an $x$ and $y$ such
that $x$ loves $y$, or not? There would seem to be no answer.

But this very general problem goes away if the “relations” we talk about are really
just properties of sequences. For example, say the phrase ‘being an $x$ and $y$ such that
$x$ loves $y’ is an abbreviation for ‘being an $x$ such that $x$ is a two-membered sequence
whose first element loves its second element’; applied to the example of Harry and
Lisa, the sequence (Harry, Lisa) clearly instantiates that relation (=property) while
the sequence (Lisa, Harry) clearly does not (although it instantiates the relation
being an $x$ and $y$ such that $y$ loves $x$, i.e. the property being an $x$ such
that $x$ is a two-membered sequence whose second element loves its first
element; which of these relations (=properties) is expressed by the ordinary English
predicate ‘loves’ and which by ‘is loved by’ probably has no answer). 4

Which brings me to a closely related preliminary: one should construe everything
I apparently say about relations to be about monadic properties of multi-element
sequences. So, for example, contrary to appearances, I will not really be speaking
about the relation (if there is one),

being an $x$ and $y$ such that $x$ caused $y$

but about the monadic property,

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3 A few remarks on notation: I use **boldface type** for uses of property/relation names and names
of important theses when first presented, *italics* for variables, proposition names, and emphasis,
**small caps** for names of arguments, and Capitalized First Letters for names of important theses
subsequent to their first presentation.

4 See van Inwagen (2006) for a development of this suggestion. He rejects it, or at least prefers
to do without it, because he prefers an ontology without sequences.
being an $x$ such that $x$ is a sequence whose first element caused its second element

But I will write *as though* I am referring to relations simply because it is less cumbersome and less distracting. Thus, I will indeed use the locution ‘being an $x,y$ such that $x$ caused $y$’; you should just understand that as an abbreviation for ‘being an $x$ such that $x$ is a sequence whose first element caused its second element’. And I will indeed use the word ‘relation’; you should just understand that to mean ‘property of a sequence’.

One final preliminary: most ordinary particulars persist through time. How they do so, that is, what metaphysical account to give of facts about persistence over time, has recently been a matter of significant controversy among philosophers. Throughout this dissertation – except when arguing for its metaphysical possibility (§2.2.2) – I have assumed Lewis’s (1983c) view that ordinary particulars persist through time by having many parts, “temporal parts,” each one of which exists only for a very short amount of time, or even just an instant. Since it is Lewis’s Patchwork Principle and Humean system that I am developing and holding up to scrutiny, I do not feel unjustified in adopting his view on persistence.

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5In general, the locution ‘being $x_1...x_n$ such that ...$x_i \Phi x_j$...’ abbreviates ‘being an $x$ such that $x$ is an $n$-termed sequence whose...and whose $i$-th element $\Phi$-d its $j$-th element and...’.

6As a matter of fact, for the sake of consistency, I will henceforth mean by ‘property’ just a special case of a relation: one that is instantiated by a single-term sequence. But so that I can continue to talk about ordinary individuals and their properties, I will employ a trick. I hereby adopt a convention – a convention about my use of the word ‘sequence’ – according to which every individual qualifies as a sequence, a ‘single-term sequence’.


8See Sider (2001a, §3.2).

9I should add that I do not know whether anything I say essentially depends on Lewis’s view about persistence: I am not confident that something does, but I am also not confident that nothing does.
ACKNOWLEDGMENTS

It appears to be a consequence of the Patchwork Principle that this dissertation could have been produced just as it is in what is more-or-less a vacuum. Whether or not the Patchwork Principle is true and whether or not that is indeed one of its consequences, I am certain that this dissertation would not have been produced at all, let alone just as it is, but for many people and institutions to whom I am greatly indebted.

My love for philosophy began at Yeshiva University, and was largely the product of classes I took with David Johnson. His clarity of thought and expression and his unmistakable passion for truth had me hooked. I can say with a good deal of confidence that if not for David, I would not be doing philosophy right now. Soon after I fell in love with philosophy, I got to know David Shatz, also at Yeshiva. His unique combination of philosophical acumen, wit, and life as an observant and deeply committed Jew, served then and continues to serve as a model of the kind of philosopher I aspire to be. More than that, he has been an unfailing mentor and friend. I am honored to be joining both David’s, and the other members of the Yeshiva philosophy faculty, as a member of their ranks in the fall.

My graduate studies at Notre Dame have been delightful. I am deeply appreciative of the University, the College of Arts and Letters, and the Graduate School for their financial support throughout my tenure as a graduate student. And I am equally appreciative of Patricia Blanchette, Richard Cross, Linda Grams, Montey Holloway, Sean Kelsey, and Catherine Robertson who work tirelessly in administering the philosophy department and its graduate program.
The philosophical atmosphere in the department was wonderful: serious and challenging, but always warm and collegial. A considerable amount of my philosophical education came from discussions with my colleagues, including Andrew Bailey, Bradley Rettler, Amy Seymour, and Jeff Snapper. I owe a special thanks to my friend and colleague, Kenny Boyce, with whom I have spent a very large number of hours profitably discussing philosophy. (I realize he doesn’t think there are any numbers, let alone very large ones, but I hope he can agree with the sentiment I’ve expressed.)

I benefited both philosophically and otherwise from the tutelage of Michael Rea and Ted Warfield, both members of my committee. Their guidance at various points in my graduate studies was pivotal. John Hawthorne’s feedback has been immensely helpful. Although I met with John only a handful of times, his penetrating comments and questions managed to shape nearly every chapter of this dissertation.

I consider myself extraordinarily fortunate and blessed to have had Alvin Plantinga and Peter van Inwagen as dissertation directors. They each embody integrity (or, to use Al’s word, ‘integrality’), dazzling philosophical brilliance, and humanity. I gained much more from them than I can say, and I will always cherish my studies with them.

There are of course people whose relationship with me has or had little or nothing to do with philosophy but who were instrumental in this dissertation’s coming-to-be. I have many good friends, but I’d like to single out one for special recognition. Menachem Danishefsky is a very dear friend, and has been so for nearly fifteen years; he has been there for me at good times and bad. Through years of studying Talmud together, talking about issues, and just hanging out, he has shaped my thinking in ways that I hope are reflected in this dissertation: if they aren’t, the dissertation is much poorer for it. As a fringe benefit, he always makes philosophy seem more attractive than other professional opportunities I might have pursued, which was helpful in raising my spirits at various points in the dissertation-writing process.

My parents served as inspirations and role models. My mother exemplified a very
rare combination of simple faith and intellectual curiosity, each matched only by her love for and devotion to all who knew her. She encouraged me to do whatever I set my mind to, and my pursuit of philosophical studies is no doubt partly due to that encouragement. My father’s humility and intellectual honesty are breathtaking, and I only hope that some of it rubs off. I deeply appreciate his encouragement of my philosophical studies. My siblings and their spouses, Shirah and Chuck, Gershon and Devorah, Yonina and Andrew, Miriam and Aharon, Michael and Aliza, and Ari and Atara, ensured that my childhood home was not only warm and supportive but full of lively debate about matters great and small: I am confident that this has something to do with my penchant for a good philosophical argument.

My mother-in-law and her husband Jeff, and my father-in-law and his wife Tzivia, have been wonderful over the past five years: I could not have asked for better in-laws. (I certainly could not have asked for more in-laws). It is unusual, I suspect, to have in-laws who are so tolerant, and indeed supportive, of one’s decision to pursue an academic career and attend graduate school for five years. Jeff has even taken an interest in matters of ontology – frequently asking me whether I think there are any chairs – and although my father-in-law is disappointed that I have not done scholarly work on any long-dead philosopher, I think he is starting to see the value in what contemporary philosophers do. (My mother-in-law is mostly happy that I will be employed.) I owe a very special thanks to my mother-in-law and Jeff for housing our whole family for two extended stints in the last couple of years. As I write this, their house is still standing despite the best efforts of our children, and I can only hope it continues to do so. I thank my wife’s siblings and their spouses, Yehuda and Nicole, Eli and Kevin, and Chaim and Shoshana, for generally supressing their bafflement at my career choice.

Sarah, Yonatan, and Ariel, have been a source of joy and inspiration at many otherwise tedious points during the writing of this dissertation, and I thank them for
that.

Finally, I owe Chaya a debt of gratitude that is too immense to be expressed here, let alone paid off. Nevertheless, I will say this. Chaya’s support of me and my professional aspirations over the past nine years has been truly remarkable. I am afraid that I neglected to express appreciation for that support as often as I should have, but the appreciation was always there, and has only grown. This dissertation is dedicated to Chaya.
CHAPTER 1

WHAT IS PATCHWORK?

1.1 Introduction

In the course of discussing “the idea of necessary connexion,” David Hume famously noted that “all events seem entirely loose and separate...they seem conjoined but never connected” (1777, 74). Generalizing beyond events and dropping the suggestion of mere appearance, we might say, “everything is entirely loose and separate...things are conjoined but never connected.” And what would that mean? Well, one of the more innocuous things it could reasonably mean is this: there are no broadly logical connections between distinct things. Roughly, nothing entails the existence, non-existence, or intrinsic nature, of anything else. David Lewis puts the point quite nicely, so I might as well just quote him:

If two things are entirely distinct, as A and B have been said to be, we want to say that questions about the existence and intrinsic nature of one are independent of questions about the existence and intrinsic nature of the other. Since Melbourne and Sydney are entirely distinct, Melbourne could exist without Sydney, or Sydney without Melbourne, or both of them could exist together, or neither. Possibility is ‘combinatorial’: there are two possibilities for whether or not Melbourne exists, two possibilities for whether or not Sydney exists, and either of the two possibilities for Melbourne can be combined with either of the two possibilities for Sydney. Likewise, possibilities about the intrinsic natures of distinct things are independent: Melbourne could be flat and Sydney could be hilly, or Sydney could be flat and Melbourne could be hilly, or both could be flat, or both could be hilly. And, likewise, whether Melbourne is flat or hilly is independent of whether Sydney does or does not exist: again, four different cases are possible. Or so we would think. (1998)
Lewis calls the general principle at work here, the ‘Patchwork Principle’. It tells
us that given that such-and-such situations are possible, so-and-so situations, which
can be patched together from the such-and-such, are also possible. No necessary con-
nections! Something like it was one of Hume’s central contentions, and my impression
is that it is widely endorsed among contemporary philosophers.

The majority of this dissertation will be devoted to the Patchwork Principle
(‘Patchwork’ for short), in one way or another: considering arguments for it and
against it, and determining its implications and the implications of its falsity. But
the first order of business is to take the rough statement that I’ve already given,
and refine it into a workable thesis, or group of theses, whose logical consequences
are clear. That is the task to which this chapter is devoted. On the road to refin-
ing Patchwork, we will encounter certain decision points. Sometimes, I will refrain
from making a decision and simply let a few different principles bloom; so we will
have Patchwork_α, and Patchwork_β, and so on. But I can’t do that at every decision
point since that would make it far too difficult to proceed for the remainder of the
dissertation. So I will make some decisions and rule out some candidate principles.
Whenever I make a decision or refrain from making one, I will try to ensure two things
(which we can call ‘The Desiderata’): first, that no resultant Patchwork Principle ob-
viously guarantees the possibility of a situation that is uncontroversially impossible;
and second, that every resultant Patchwork Principle is adequately Humean.

While the first desideratum is clear enough, the second one is less so. What
does it mean to be ‘adequately Humean’? It’s not as though the theses that pass
Humean muster are etched into some stone in Edinburgh or Princeton. Indeed, they
are not. Here’s what I mean. I have in mind a certain intuition about possibility -
which derives from Hume and commands a serious contemporary following - along
with a certain powerful argument for accepting that intuition. The intuition is not
very determinate all by itself: it is about as rough as the statements I have given
so far, and could be specified in a number of ways. But it is (a) specific enough to
know of certain states of affairs that Patchwork ought to imply their possibility and
(b) specific enough to know which argument or arguments would support it. And
that argument (or those arguments) can in turn be used to specify the intuition even
further: for each such argument, there is some strongest thesis that it would establish,
if sound. Thus, for a thesis to be ‘adequately Humean’ is for it to be a specification
of the Humean intuition that (a) implies the possibility of certain paradigm cases
and (b) is at least as strong as the strongest thesis established by some powerful
argument(s) for accepting that intuition. That’s a mouthful, but the idea is pretty
simple: any thesis I settle on should adequately capture Humeans’ intuitions about
particular cases and some reason or argument the Humean can reasonably use to
support Patchwork in the first place. ¹

Before I turn to the decision points, I should say what the powerful argument
I have in mind is. It is what I call ‘THE ARGUMENT FROM MYSTERY’, and it
more-or-less consists in the following two premises: (1) no true necessity-attributing
proposition is brute (i.e., without explanation or ground), and (2) if the Patchwork
Principle is false, there is a true necessity-attributing proposition that is brute.² In
§3.2 I will elaborate and defend this argument, and I will explain in detail how it

¹Objection: What about a Humean who has no reasons or arguments for her acceptance of
Patchwork - she just has an intuition that it’s true - and that’s the end of it?
Reply: She is not my concern here. I ignore her not because I don’t share her intuition (I do),
and not because I don’t think she could be justified in her acceptance of Patchwork without reasons
or argument (I do), but because absent some such reason or argument to serve as a guide, the
preliminary task of identifying a principle (or small group of principles) as a target would be much
more difficult.

²A sentence X is necessity-attributing iff for some sentence Y, X is the sentence \[ \square Y \]. And a
proposition p is necessity-attributing iff p can be expressed by some necessity-attributing sentence.
It is a proposition that “says” that some state of affairs is necessary.

Note, an explanation can terminate - with no need for a further explanation - if one “hits” a non-
necessity-attributing truth. So, for example, the proposition that Necessarily, Hesperus is identical
with Phosphorus is arguably explained (and not merely entailed) by the proposition that Hesperus is
identical with Phosphorus. The latter proposition is necessarily true, but not necessity-attributing,
so no further explanation is called for, at least not in virtue of (1).
supports the specific version(s) of Patchwork on which I will settle by the end of this chapter. But hopefully my brief characterization suffices to allow The Argument from Mystery to serve in this chapter as an important guidepost in the process of honing in on an adequately Humean principle.

1.2 De Re and De Qualitate

Let’s begin with the first decision point. Lewis, in the passage quoted above, makes claims of de re possibility: for example, that Sydney could exist without Melbourne. The claim is not just that a city very much like Sydney could exist without Melbourne; and the claim is not just that the sentence ‘Sydney could exist without Melbourne’ is true. It’s that Sydney, the very city in Australia that some people know and love, could exist without Melbourne; and, putting it in a way that there can be no misunderstanding of the intended “grade of modal involvement,” that there is something, which is identical with Sydney, and possibly it could exist without Melbourne. Generalizing the point, we might say that de re possibility is combinatorial.

Elsewhere, however, Lewis (1986b) makes it clear that he does not want his Patchwork Principle to entail that de re possibility is, in general, combinatorial. He has in mind Kripkean counterexamples like these: I exist and my father exists, I could have failed to exist and my father could have failed to exist, but, Kripke (1980) would argue, it’s not possible that I exist and my father have failed to exist. If Kripke is right, de re possibility is not combinatorial. And Lewis is willing to concede that Kripke is right.3 But, Lewis notes, Kripke’s arguments do not tell against the following pos-

3Although the appearance of agreement between Lewis and Kripke is a bit misleading. As I note presently, Lewis gives a different semantics to such de re claims than does Kripke, and so while they might agree, for the most part, about which sentences are true, they disagree about which propositions are true. (The ‘for the most part’ qualification is due to the fact that they will have disputes about certain sentences of semantic theory.)
sibility: there is something very much like me (even a perfect intrinsic duplicate of me) and my father never existed (even nothing like my father ever existed). Lewis therefore counsels us to endorse a version of the Patchwork Principle, which, in some sense says that possibility is combinatorial, but does not entail that de re possibility is.

This suggests two candidate versions of the Patchwork Principle:

**Patchwork De Re** For any \( x \) and any \( y \), where \( x \neq y \), and any way \( w_x \) that \( x \) could be and any way \( w_y \) that \( y \) could be, possibly, \( x \) is way \( w_x \) and \( y \) is way \( w_y \) (and possibly, \( x \) is way \( w_x \) and nothing (other than perhaps \( x \) and its parts) is way \( w_y \), and possibly, \( y \) is way \( w_y \) and nothing (other than perhaps \( y \) and its parts) is way \( w_x \), and possibly, there is nothing that is way \( w_x \) and nothing which is way \( w_y \)).

**Patchwork De Qualitate** For any \( x \) and any \( y \), where \( x \neq y \), and any way \( w_x \) that \( x \) could be and any way \( w_y \) that \( y \) could be, possibly there is something which is way \( w_x \) and something which is way \( w_y \) (and possibly there is something \( x_1 \) which is way \( w_x \) and there is nothing (other than perhaps \( x_1 \) and its parts) that is way \( w_y \), and possibly there is something \( y_1 \) which is way \( w_y \) and nothing (other than perhaps \( y_1 \) and its parts) is way \( w_x \), and possibly, there is nothing that is way \( w_x \) and there is nothing which is way \( w_y \)).

Do either or both of these principles satisfy The Desiderata? Well, Patchwork De Re is at least formally stronger than Patchwork De Qualitate, as it formally implies, but is not formally implied by, the latter. So, in a sense, Patchwork De Qualitate stands a better chance of satisfying the first desideratum: if Patchwork De Re entails no uncontroversially impossible situations, then Patchwork De Qualitate does not either, but the

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4 Each of the two versions could be expressed in subtly different ways - most of them involving a shift in a quantifier - and the resultant principles would be of slightly different strengths. (As a matter of fact, the principle I have called 'Patchwork De Re' is slightly stronger than the one that Lewis seems to sketch in the citation above.) But, I prefer not to get bogged down by those details since I will be setting aside Patchwork De Re in any case, and the details about Patchwork De Qualitate will be ironed out in the course of this chapter.

5 I have used boldface in my statement of both principles to indicate where exactly the principles diverge.

6 Where, let us say, \( p \) formally implies \( q \) iff \( p \) can be perspicuously expressed, in a sufficiently rich language, by a sentence from which one can logically deduce some sentence that perspicuously expresses \( q \).
converse is not trivially true.

Be that as it may, it seems that both principles indeed satisfy the first desideratum. It is true that Patchwork$_{De\ Re}$ obviously guarantees the possibility of certain situations - like one in which I exist but not my (actual) father - that some philosophers, such as Kripke, think impossible. But their claim that those situations are impossible is hardly uncontroversial. And even if it turns out that one or the other of the principles guarantees the possibility of situations that are uncontroversially impossible, that it does so is not obvious. Otherwise this dissertation might as well end here. So, as far as I can tell, both candidates satisfy the first desideratum.

The second desideratum, however, is more helpful in winnowing down candidates. Suppose a Humean, i.e. someone committed to Patchwork, gives a counterpart-theoretic semantics for $de\ re$ modal claims. That is, suppose she endorses the following abbreviation schema:

\[
\text{‘}x\text{ is possibly (necessarily) } F' \text{ is to be understood as abbreviating ‘some (every) counterpart of } x\text{ is } F'\]

Never mind why she does. Maybe it’s because she accepts Lewis’s claim that individuals are “worldbound,” or maybe it’s to avoid modal paradox, or maybe she thinks, as Humeans often do, that there isn’t any other way to make such locutions intelligible. Whatever the reason, she seems well within her rights to do so, at least insofar as her Humeanism is concerned.

But note that two points of interest follow from her semantics. First, the second premise of The Argument from Mystery is not very plausible if the Patchwork Principle in play is Patchwork$_{De\ Re}$. For it might very well be that all “violations” of Patchwork$_{De\ Re}$ are necessity-attributing truths indeed, but ones that are grounded

[7] See Robertson (1998), Hawthorne and Gendler (2000), and Barnett (2005) for resistance and criticism of Kripke’s Origins Essentialism. To be sure, there might be properties other than ones like originating from $\alpha$ which are arguably essential to something but not intrinsic to it; but I very much doubt that any property will be uncontroversially so.
in facts about similarity. Why is it that I am necessarily accompanied by a female (if
that’s true)? Because anyone unaccompanied by a female – and hence by a mother
– is too dissimilar to me to be my counterpart.8

Second, and relatedly, PatchworkDe Re would have substantial implications for the
counterpart relation: roughly, it would imply that similarity in extrinsic respects
counts not at all for the purposes of that relation (Lewis, 1986b, §1.8). But one
might justifiably object: why should Humeanism commit one to that? The problem
is only exacerbated if the Humean in question accepts Lewis’s version of counterpart
theory, according to which different counterpart relations are (implicitly) invoked
in different contexts. How then should she answer the following question: does
the statement of PatchworkDe Re express a truth in all contexts or just in ordinary
(or philosophical) contexts? If the former, her answer is wildly implausible. If the
latter, then PatchworkDe Re is committed to a certain view about which counterpart
relation we happen to pick out in ordinary (or philosophical) contexts, and that surely
seems to be a matter about which Humeanism, just as such, ought to be silent!
Of course, PatchworkDe Re does not entail any of these things unless counterpart-
theoretic analyses are right. But it does entail this disjunction: either counterpart-
theoretic analyses are wrong, or similarity in extrinsic respects counts not at all
for the purposes of the counterpart relation. And that seems to be foisting on the
Humean a claim which goes far beyond the central Humean contention.

I prefer to welcome the counterpart-theorist into the Humean camp that I will be
targeting, especially since there seems to be an affinity between that semantic theory
and Patchwork: at the very least, the most prominent contemporary advocates of
Patchwork are also counterpart-theorists. So I will henceforth ignore PatchworkDe Re
and restrict my attention to PatchworkDe Qualitate.

8This answer goes down best if you accept Lewis’s ontology of concrete possibilia, but those in
favor of ersatz counterparts can give it as well.
1.3 What are Ways?

One might ask: what are these ‘ways’ over which Patchwork quantifies? Well, they are ways something can be, so, naturally enough, they are properties. But not just any old property of a thing counts as a ‘way it is,’ at least as I’m using the term: only a property that is intrinsic, that is solely a matter of how the bearer of the property is, counts as a ‘way’ something is. And that is a good thing because Patchwork would be obviously false if every property counted. One way for me to be (where ‘way’ is broadly construed) is being such that no table exists and one way for my table to be is being a table. But it’s quite clearly impossible for there to be something which is such that no table exists and for there to be something which is a table. The trouble is that the former property is extrinsic; my having it - were I to have it - is partly a matter of how everything else is.

Now, I ought to clarify what I mean by the locution ‘intrinsic property’. Otherwise, it is doubtful that Patchwork will have a clear meaning, if any at all. After all, as the term is being employed here, it is a philosophical term of art, not a term of ordinary English. (That’s not to deny that sometimes people use it when speaking English in the ordinary business of life. They do. Unfortunately, it carries a variety of senses when employed in ordinary English, and often, it is employed with no clear sense at all. So I intend to use it without concern for its ordinary sense(s), although, of course, the sense I intend may well be one of the senses it ordinarily has.) And a philosophical term of art needs to be introduced, either by stipulative definition, helpful example, or the introduction of a theory in which it plays a role (or some combination thereof).

1.3.1 Combinatorial Definition

Some philosophers have attempted to give a combinatorial definition of ‘intrinsic property’: the guiding idea is that intrinsic properties are ones that are had indepen-
dently (in the standard modal sense) of whatever else there is. But this guiding idea can be, and has been, implemented in a couple of different ways. One way, which traces back to a suggestion by Jaegwon Kim (1982), is to say simply that a property is intrinsic iff it is independent of whether there is anything else, i.e., neither it nor its negation entails *accompaniment* or *loneliness*. Unfortunately, this proposal comes to grief with properties like *being spherical and accompanied* or *cubical and lonely*. That property is independent in the specified sense – something can have it whether accompanied or lonely, and can also lack it whether accompanied or lonely – but we wouldn’t want to say it’s intrinsic. Particularly relevant for us, Patchwork would obviously entail the possibility of an uncontroversial impossibility if that is how we were to define ‘intrinsic property’ and ‘way that *x* could be’ were understood, as I have suggested, to abbreviate ‘intrinsic property that *x* could possibly have’.

Some philosophers have attempted to rescue the definition along the following lines: define ‘intrinsic property’ in two stages. First stage: say a *basic intrinsic property* is one that is both independent in the above sense and neither it nor its negation is equivalent to a ‘bad disjunction’ - where a ‘bad disjunction’ is one such that each of its disjuncts is more natural than the disjunction. Second stage: say

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9Where an object *x* is accompanied iff there is something contingent distinct from *x* and each of *x*’s parts. Otherwise, it is lonely. Note, this is slightly different from how Lewis (1983a, 2001a) defines the terms ‘accompanied’ and ‘lonely’.

10Consider something, like a quark, that could be lonely and simple. If it were, it would have the property *being composite and accompanied, or simple and lonely* and the property *being simple*. Both properties are intrinsic by the suggested definition. And, a platitude about intrinsic properties that any reasonable definition of ‘intrinsic property’ ought to respect is that the conjunction of two intrinsic properties is intrinsic. So the property *being (composite and accompanied, or simple and lonely) and simple* is intrinsic and something possibly instantiates it. Then, since *being composite and contingent* is an intrinsic property that something possibly instantiates, Patchwork entails that possibly there is something that has the property *being (composite and accompanied, or simple and lonely) and simple* – and hence, is simple and lonely – *and* there is something that has the property *being composite and contingent* – and hence is composite and contingent. And that’s impossible.

11That’s how Lewis puts it in his (2001a): earlier, he and Langton (1998) had put it that a ‘bad
that an intrinsic property is one that supervenes on the basic intrinsic properties.\textsuperscript{12} Or, a related rescue attempt, which throws out fewer disjunctions at the first stage and so doesn’t need to reinstate them at a second stage: say an intrinsic property is one that is both independent in the above sense and neither it nor its negation is equivalent to an ‘uber-bad disjunction’.\textsuperscript{13}

But, it is doubtful that these fixes are successfu. Even granting, as I do, the intelligibility of the notion of relative naturalness, certain obviously extrinsic properties – and obvious on any sense of ‘intrinsic’ that would be useful for explicating Patchwork – seem to count as intrinsic even according to the amended versions of the definition. To borrow an example from Hawthorne (2001b), consider the property attending to something. If this were to count as intrinsic, then Patchwork would again obviously entail the possibility of an uncontrovertially impossible situation.\textsuperscript{14}

And arguably, it \textit{would} count as intrinsic on the amended versions of the definition. It is independent in the required sense, and although it is equivalent to the disjunction either attending to oneself or one’s parts or attending to something other than oneself or one’s parts, that doesn’t \textit{seem} like an uber-bad disjunction, or disjunction’ is one such that each of its disjuncts is much more natural than the disjunction. The earlier formulation is afflicted by vagueness to a greater degree than the later one.

\textsuperscript{12}See Langton and Lewis (1998); Lewis (2001a).

\textsuperscript{13}Lewis (2001a). An uber-bad disjunction P is one such that P is less natural than the conjunction of P and \textit{accompaniment} or it is less natural than the conjunction of P and \textit{loneliness}. Thus, the property \textit{being spherical and accompanied or cubical and lonely} is an uber-bad disjunction twice-over: it is less natural than the conjunction of it and accompaniment \textit{and} it is less natural than the conjunction of it and loneliness. On the other hand, the property \textit{spherical or cubical} is not an uber-bad disjunction, although it is a bad disjunction.

\textsuperscript{14}Since the property \textit{not attending to oneself or any of one’s parts} is intrinsic, and it is a platitude about intrinsic properties that the conjunction of two intrinsic properties is intrinsic, the property attending to something other than oneself and one’s parts would be intrinsic, or at least entailed by an intrinsic property. But then Patchwork would entail that possibly there is something \(x\) that is attending to something other than \(x\) and its parts \textit{and} that there is nothing other than \(x\)’s parts (since a way for something to be is to \textit{exist}). And that’s obviously impossible.

Note that this point is unaffected if Patchwork is amended so as to be restricted to contingent things; only a minor adjustment in the example is required.
even a bad disjunction for that matter. It doesn’t seem any less natural than either disjunct, let alone both. Indeed, it seems more natural.

These difficulties have led some philosophers to take a slightly different approach. They say that a property is intrinsic iff it is independent not only of whether there is anything else, but how everything else is. But how everything else is, in which respects? At minimum, they assume, for a property to be intrinsic, it must be independent of the distribution of all intrinsic properties. In other words, they assume Patchwork, and use it to define ‘intrinsic’.\textsuperscript{15} So, the idea goes, if two properties are intrinsic, then they have to be freely recombinable in the way that Patchwork says they are. And if they fail to be freely recombinable in that way, then at least one of them is not intrinsic. As it stands, this gives us a necessary condition for two properties to be intrinsic.\textsuperscript{16} What is needed to define ‘intrinsic property,’ of course, is a necessary and sufficient condition for one property to be intrinsic. And whether Patchwork can be massaged into such a condition is a non-trivial question.\textsuperscript{17} But whether or not it can be done, I have little use for it to explicate Patchwork. Of course, if we define ‘intrinsic’ in such a way that two properties are intrinsic only if they satisfy Patchwork, and we restrict the ways over which Patchwork quantifies to intrinsic properties, then Patchwork is trivialized: it would say, roughly, that for

\textsuperscript{15}See Yablo (1999) and Weatherson (2001). Lewis (2001a, 395) puts the strategy nicely: “The general independence principle amounts to Hume’s familiar denial of necessary connections between (the intrinsic character of) distinct existences. Usually we take the notion of intrinsic character for granted, and use the principle as a guide to what is possible. Weatherson’s new idea – and a very good and fruitful idea it turns out to be – is to stand the principle on its head: take possibility for granted, and use the general independence principle, or something like it, as a guide to what is intrinsic.”

\textsuperscript{16}Yablo’s (1999) suggestion – despite resting on a ‘combinatorialist intuition’ – is somewhat different, and doesn’t fall prey to this problem.

\textsuperscript{17}Marshall (2009) seems to have shown that ‘intrinsic property’ cannot be defined using only logical, modal, and mereological vocabulary. Thus, if Patchwork can be massaged into a definition of ‘intrinsic property,’ it will require additional primitives. Weatherson (2001), for example, makes use of the locution ‘\(x\) is more natural than \(y\).’
any two properties that satisfy Patchwork, they satisfy Patchwork.\textsuperscript{18} That triviality surely doesn’t adequately capture the core Humean contention.

The upshot: a combinatorial definition of ‘intrinsic property’ will either likely violate the first desideratum (if it’s implemented in the Chisholm-inspired way) or certainly violate the second one (if it’s implemented in the Weathersonian way). Clearly, a combinatorial definition of ‘intrinsic property’ is not what I want.

1.3.2 Replicas

Consider the following story:

God said to Bezalel the son of Uri: “I see the Taj Mahal and it finds favor in my eyes. Go ye and build an exact replica of it in New Jersey.” And Bezalel did as he was commanded, and there was an exact replica of the Taj Mahal just east of the Garden State Parkway, near Paramus.

I think we understand this story quite well. We can easily imagine what it is that Bezalel did, and what the resulting structure looked like. Presumably, it looked very much like the Taj Mahal, although perhaps it never looked exactly like the Taj to a local observer, in part because the lighting conditions in India are a bit different from those in Paramus.

Importantly, that we understand the story quite well reflects the fact that we understand the notion of an exact replica quite well. That is a very good thing, since ‘intrinsic property,’ along with several other closely related terms, can be defined in terms of ‘exact replica’. It will be helpful, in fact, to first define the closely related terms, and define ‘intrinsic property’ in terms of them (hence, ultimately in terms of ‘exact replica’). So let me say something about the two terms I have in mind, and

\textsuperscript{18}Where, let us say, two properties, way\textsubscript{x} and way\textsubscript{y}, satisfy Patchwork just in case: possibly there is something which is way \textsubscript{w\textsubscript{x}} and something which is way \textsubscript{w\textsubscript{y}} (and possibly there is something \textsubscript{x} which is way \textsubscript{w\textsubscript{x}} and there is nothing (other than perhaps \textsubscript{x} and its parts) that is way \textsubscript{w\textsubscript{y}}, and possibly there is something \textsubscript{y} which is way \textsubscript{w\textsubscript{y}} and nothing (other than perhaps \textsubscript{y} and its parts) is way \textsubscript{w\textsubscript{x}}, and possibly, there is nothing that is way \textsubscript{w\textsubscript{x}} and there is nothing which is way \textsubscript{w\textsubscript{y}}.

12
then proceed to the definitions.

One related term is ‘$x$ is intrinsic to $y$’: we can, and often do, say of a property not only that it is intrinsic, but that it is *intrinsic to so-and-so*, or, what I take to be the same thing, that so-and-so has it *intrinsically*. So, we might say that *being spherical* is an intrinsic property; but we might also say that the property *being spherical* is intrinsic to my tennis ball, where that means that my tennis ball’s having it is solely a matter of how my tennis ball is. Note that there are properties that are intrinsic to some things, but aren’t intrinsic, period.\(^{19}\) Here’s one case: *being spherical* or *within a mile of a baseball stadium*. This is intrinsic to my tennis ball – and any sphere, whether or not it is within a mile of a baseball stadium – but not to a non-sphere that is within a mile of a baseball stadium. As such, it is not an intrinsic property.\(^{20}\)

Another related term is ‘$x$ is an intrinsic nature of $y$’: we might have occasion, especially in philosophical contexts, to speak of a *total way* a thing is intrinsically. This would be a property that is maximally specific with respect to its bearer’s intrinsic character. Let us introduce the term ‘$x$ is an intrinsic nature of $y$’ to express the relation that $x$ bears to $y$ iff $x$ is a total way for $y$ to be; and we can, naturally enough, introduce the term ‘$x$ is an intrinsic nature’ to express the second-order property that a property has when it is possibly the intrinsic nature of something or other.

\(^{19}\)See Humberstone (1996, §3).

\(^{20}\)I am inclined to think that the relation *being an $x$ and $y$ such that $x$ is intrinsic to $y$* is more basic to our conceptual scheme than the property *being intrinsic*, and that the latter should be understood along the following lines: *being such that necessarily, everything that has it, has it intrinsically*. After all, what does it mean to say that a property ‘is solely a matter of how the bearer of the property is,’ unless that’s shorthand for ‘whenever it’s had, its being had is solely a matter of how the bearer of the property is’? Compare: we can sensibly say that such-and-such property is an essential property of so-and-so. But it makes little sense to say that such-and-such property is an essential property, period, unless we mean something like this: necessarily, everything that has such-and-such has it essentially. But not much hangs on this claim of conceptual priority.
Now that the terms on the table, we can stipulate the following definitions for them:\(^{21}\):

(D1) ‘\(x\) is an intrinsic nature of \(y\)’ =\(_{df}\) Necessarily, for any \(z\), \(z\) is an exact replica of \(y\) iff \(z\) has \(x\) (all and only possible exact replicas of \(y\) have \(x\))\(^{22}\)

(D2) ‘\(x\) is an intrinsic nature’ =\(_{df}\) Possibly there exists a \(y\) such that \(x\) is an intrinsic nature of \(y\) (all and only possible exact replicas of some possible have \(x\)).

(D3) ‘\(x\) is intrinsic to \(y\)’ (‘\(y\) has \(x\) intrinsically’) =\(_{df}\) For any intrinsic nature \(x_1\) of \(y\), \(x_1\) entails \(x\) (\(x\) is entailed by \(y\)’s intrinsic nature(s)) \(\equiv\) Necessarily, for any \(z\), if \(z\) is an exact replica of \(y\), then \(z\) has \(x\) (all possible exact replicas of \(y\) have \(x\))

(D4) ‘\(x\) is an intrinsic property’ =\(_{df}\) Necessarily, for any \(z\), if \(z\) has \(x\), \(x\) is intrinsic to \(z\) (\(x\) is necessarily intrinsic to whatever has it) \(\equiv\) Necessarily, for any \(y\) and \(z\) such that \(y\) has \(x\) and \(z\) is an intrinsic nature of \(y\), necessarily, for any \(y_1\) such that \(z\) is an intrinsic nature of \(y_1\), \(y_1\) has \(x\) \(\equiv\) Necessarily, for any \(z\), if \(z\) has \(x\), then necessarily, for any \(z_1\), if \(z_1\) is an exact replica of \(z\), then \(z_1\) has \(x\) (no two possible exact replicas differ with respect to having \(x\))

These definitions make clear what I mean by each definiendum if it is indeed clear what I mean by ‘exact replica’; and it is clear what I mean by ‘exact replica’ if it is clear what that term means in English, since I intend no technical or particularly philosophical sense. And, finally, my fictional tale about Bezalel strongly suggests that it is clear what that term means in English.

But some might object that this suggestion is misleading: yes, they grant, in the story I have told in which Bezalel is given a relatively simple task - from a philosophical point of view, of course, not an architectural one - we can understand quite well what he was asked and what the resulting structure would look like. But, they say, it is not always so easy to determine which pairs of objects are exact replicas, especially when the objects in question are in radically different environments. They

\(^{21}\)See Appendix A for several technical remarks about these definitions.

\(^{22}\)In my informal bolded translations of definitions, I have allowed myself the liberty, for ease of comprehension, of assuming Lewis’s possibilism. See Appendix A.
might urge us to consider the following slightly different story:

God said to Bezalel the son of Uri: “I see the Taj Mahal and it finds favor in my eyes. Go ye and design an exact replica of it.” And Bezalel said, “Where shall it be built?” And God replied, “Neither here nor in New Jersey shall it be built. It shall be built somewhere and somewhen in some possible world or other, but you can know no more than this.” And Bezalel did as he was commanded.

Now, suppose Bezalel had gone about designing the replica by specifying all of its dispositional properties (and all its parts’ dispositional properties): which wavelengths of light it is disposed to absorb and which to reflect, under what pressure it is disposed to collapse, what nearby objects it is disposed to attract and repel with what acceleration, etc. Would that have been a way of doing as he had been commanded? Yes, say philosophers like Sydney Shoemaker: they would say that is an excellent way for Bezalel to do as he had been commanded, since there is nothing more to specify that could be of any relevance to whether the object built according to his specifications is a replica of the Taj Mahal. No, say philosophers like David Lewis: they would say that’s a spectacularly bad way to try to go about doing as he had been commanded, since there are some environments such that an object built according to his specifications could exist in those environments, but that object would fail to be a replica of the Taj Mahal. This is a vexed and controversial issue.

But this controversy fails to show that we do not understand the notion of an exact replica, or even that we can’t in general tell whether two things are exact replicas; it simply shows that there are interesting metaphysical questions - in this case, about the nature of laws and dispositions - which are equivalent to questions about what would count as an exact replica of something. Crucially, it seems that if Bezalel had a way of settling those philosophical questions, then he would face no

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23 Still other responses are available: some philosophers would say that there are no dispositional properties to specify (Armstrong 1968); others would profess not even to understand my supposition since ‘dispositional property’ is unintelligible to them.
obstacle to following God’s command from a lack of understanding the notion of an *exact replica*. So I am indeed going to assume that it is clear what I mean by the definienda.

### 1.3.2.1 My Project and Lewis’s Project

Anyone sufficiently familiar with the literature on intrinsicness will immediately recognize that my ‘exact replica’ is a mere terminological variant of Lewis’s (1983b; 1986b) ‘intrinsic duplicate’. I avoided his term for the simple reason that it seems to be a piece of philosophical jargon and I would like my primitive term to be a piece of ordinary English. (Henceforth, I will make liberal use of ‘intrinsic duplicate’, and by that term you should understand what ordinary English speakers mean by ‘exact replica’.)

An unintended benefit of using a different term is that it disassociates the project of the previous section from the one Lewis wishes to engage in. Lewis would like a deep and illuminating conceptual analysis of the family of ‘intrinsicality concepts’, including *intrinsic duplicate*. He thinks, at least in some places, that he can give an illuminating conceptual analysis of *intrinsic duplicate* (and hence *intrinsic property*) in terms of *perfectly natural property*. But it is important to note that for the purposes of expressing a plausible, non-trivial, and well-understood thesis to go by the name ‘Patchwork,’ it matters not whether he is right. Even if Lewis’s suggested conceptual analysis is wrong, and even if there is no illuminating conceptual analysis of *intrinsic duplicate*, I can still use ‘exact replica’ to express a plausible, non-trivial, and well-understood thesis, as long as ‘exact replica’ is well-understood. As I have repeatedly emphasized, I think it is.\(^{24}\)

\(^{24}\)This paragraph should not be taken to imply that I think there is no illuminating conceptual analysis of the intrinsicality terms. I do think there is one: see §3.2.3.3.
1.3.2.2 Consequences of Definitions

Now, let me note two consequences of the definitions. First: they deliver the intuitively correct results that the property being (roughly) spherical or within a mile of a baseball stadium is not intrinsic - and we can call any such property ‘extrinsic’ - but that it is intrinsic to any tennis ball. After all, necessarily, any exact replica of a tennis ball will be (roughly) spherical, but every flagpole around Shea Stadium has the property but not intrinsically (we can say it ‘has it extrinsically’).

Second, the definitions have the consequence that anything which is possibly replicated by something else has none of its haecceities intrinsically. Thus, by these definitions, I do not have the property being identical with Aaron intrinsically, since there is a possible replica of me who is distinct from me, and thus lacks that property. And a corollary is that being identical with Aaron is not an intrinsic property. Admittedly, these are odd-sounding results, but they are exactly the results we want. We want Patchwork to ignore identity-entailing properties like being identical with Aaron; otherwise, the claim that de re possibility is combinatorial will be entailed by Patchwork\textsubscript{De Qualitate}, no less than by Patchwork\textsubscript{De Re}.

Now that I have clarified what I mean by the intrinsicality terms, we can employ them to generalize and simplify Patchwork.

1.4 Patchwork Generalized and Simplified

It is easy to generalize and simplify Patchwork in certain natural ways. First, the generalizations. As I formulated Patchwork above, it says (where ‘way’ is understood

\footnote{In addition, in Appendix A, I have listed a host of formal properties of the intrinsicality notions, some of which I will have occasion to use.}

\footnote{Where, let us say, ‘$x$ is a haecceity of $y$’ =df $x$ is a property that $y$ has, and necessarily, anything that has $x$ is identical with $y$.}

\footnote{See Dunn (1990).}
to abbreviate ‘intrinsic property’) that the possible intrinsic properties of *two things in the actual world* are recombinable. Of course, the principle is not supposed to be restricted to just *two* things. And indeed, we can easily reformulate the principle to accomodate that needed generalization. But neither should it be restricted to recombinations of ways that things *in the actual world*, or even *in a single possible world*, could each respectively be; it should guarantee that any ways that are each possibly instantiated are mutually recombinable, period. Possibilists like Lewis have no difficulty here; they can simply quantify unrestrictedly, and their net will catch all the merely possible things also. But what are we actualists to do?

The answer is fairly simple: drop the quantification over property-*bearers*, and focus solely on the properties or ways themselves. The properties are where all the action in *Patchwork* De Qualitate (unlike *Patchwork* De Re) is going on anyway, and the things which possibly bear them might as well just drop out of the picture. What the generalized principle should say is that for any possibly instantiated intrinsic properties, possibly each of those properties is instantiated, arbitrarily many times over.\(^{28}\) For example, the properties **being pleasantly plump** and **being wise** are possibly distributed in this way (assuming they are intrinsic): three things are pleasantly plump and two things are wise.

So here’s a first pass at a generalized version:

**Patchwork**\(_1\): For any sequence \(\{Q_1,\ldots,Q_N\}\) of intrinsic properties, and any sequence of cardinals \(\{a_1,\ldots,a_N\}\), there is a possible world in which there are \(a_1\) things which instantiate \(Q_1\)...and \(a_N\) things that instantiate \(Q_N\).

This formulation immediately raises a question: are we to interpret it as requiring the possibility of *at least* \(a_1\) (and ...\(a_N\)) such things or *exactly* \(a_1\) (and ...\(a_N\)) such things? If we choose the former, then the principle is clearly too weak: it wouldn’t

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\(^{28}\)Note that any impossible property is an intrinsic property, according to the definitions I gave above. Henceforth, by ‘intrinsic property’ I will mean ‘possible intrinsic property’. 
rule out the bizarre view that any possible world in which there are at least three pleasantly plump things, there are at least four pleasantly plump things. No possible world in which the pleasantly plump number exactly three: there’s no way a Humean could settle for that! If we choose the latter then it is clearly too strong. Consider any sequence of intrinsic properties one of whose members entails another one, like being spherical and being extended: of course there can’t be exactly four things that are spherical and exactly three things that are extended.

A remedy seems easy to find. Let us say that a sequence of properties is pairwise non-entailing iff no property in the sequence entails any other property in the sequence. Then we can adopt the ‘exact’ reading, and the principle can be put this way:

\[
\text{Patchwork}_2: \text{ For any pairwise non-entailing sequence } \{Q_1,...,Q_N\} \text{ of intrinsic properties, and any sequence of cardinals } \{a_1,...,a_N\}, \text{ there is a possible world in which there are exactly } a_1 \text{ things which instantiate } Q_1...\text{and exactly } a_N \text{ things that instantiate } Q_N.
\]

But this won’t do either: consider the sequence, \{being red, being non-red, being spherical\}. This is a pairwise non-entailing sequence of intrinsic properties, but there is no possible world in which there are exactly three red things, three non-red things, and seven spherical things. The problem is that the disjunction of being red and being non-red is entailed by being spherical. So what we need is a stronger condition: that no property in the sequence entails the disjunction of the rest of the properties. Let us say that a sequence of properties is collectively non-entailing iff no property in the sequence entails the disjunction of every other property in the sequence. Then the revised principle is this:

\[
\text{Patchwork}_3: \text{ For any collectively non-entailing sequence } \{Q_1,...,Q_N\} \text{ of intrinsic properties, and any sequence of cardinals } \{a_1,...,a_N\}, \text{ there is}
\]

\[29\text{There is obviously a residual and related difficulty, which is that it seems that some intrinsic properties entail, for some intrinsic property } P, \text{ having a part which has } P, \text{ even though it does not entail } P. \text{ I postpone discussion of this difficulty until section 1.7.}\]
a possible world in which there are exactly $a_1$ things which instantiate $Q_1$...and exactly $a_N$ things that instantiate $Q_N$.

This formulation has the vice of being extremely difficult to grasp “all at once,” since the notion of a *collectively non-entailing sequence* is, needless to say, not a very familiar one. So now for the simplification. Luckily enough, the above formulation expresses a claim that is equivalent to the following one about intrinsic natures (rather than intrinsic properties more generally)$^{30}$:

**Patchwork$_4$:** For any sequence $\{Q_1, ..., Q_N\}$ of non-equivalent intrinsic natures, and any sequence of cardinals $\{a_1, ..., a_N\}$, there is a possible world in which there are exactly $a_1$ instances of $Q_1$...and exactly $a_N$ instances of $Q_N$.

Or, as a possibilist like Lewis might put it (and has put it): for any non-duplicating possibilia, there is a possible world in which there are exactly as many duplicates of each as one would please.

1.5 Domain of Quantification

We will, in the next section, extend Patchwork in at least one respect, but first let’s focus on a certain *restriction* we might want to impose. What is the intended domain of quantification for Patchwork? To get a sense of the issues involved, consider the denizens of Plato’s Heaven, if such there be: numbers, pure sets, propositions, and the like. Now, if there is something identical to the number 4, then there is some property (really, there are many such equivalent properties) that is an intrinsic nature of it. Perhaps it shares that intrinsic nature with nothing else, or perhaps it shares it with every other number. It’s hard to know.$^{31}$ But surely there aren’t exactly seven things with its intrinsic nature; and nor *could* there have been. And

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$^{30}$The argument that Patchwork$_3$ and Patchwork$_4$ are equivalent is in Appendix B.

$^{31}$See Lewis (1986b, §3.4) and van Inwagen (1986).
yet Patchwork, as it stands, indeed guarantees that there could have been exactly seven things with that intrinsic nature.

As far as I can tell, there are two options as to how to proceed: restrict the principle in some way or let the chips fall where they may. To take the second option is to accept that a consequence of Patchwork is the denial of Platonism.\textsuperscript{32}

The second option appears to satisfy The Desiderata: Platonism is no uncontro-versial truth, so an unrestricted version of Patchwork faces no clear obstacle from the first desideratum; and it surely seems to satisfy the second desideratum. But in truth, appearances might well be misleading here. It can indeed satisfy each desideratum, but perhaps only at the expense of being able to satisfy the other. Here’s why: Patchwork would seem to be far too weak unless there are uninstantiated intrinsic natures. Suppose the search for the Higgs Boson had come up empty because there was no Higgs Boson. Even under that supposition, presumably there could have been a Higgs Boson.\textsuperscript{33} Then surely Patchwork should guarantee that there could have been both a Higgs Boson and a photon. The trouble is, it won’t unless there are uninstantiated intrinsic natures. And presumably, there are uninstantiated intrinsic natures only if Platonism is true. Of course, that’s not the end of the story. The advocate of an unrestricted Patchwork can embrace the falsity of Platonism and avail herself of the standard nominalist toolkit for dealing with apparently nominalist-offensive

\textsuperscript{32}By ‘Platonism’ I mean the view that there are abstract objects, and at least some of them exist in serene indifference to variations in the concrete world, in the sense that they exist necessarily and have their intrinsic nature(s) essentially. (I don’t take Platonism to be committed to the claim that all abstract objects are like that; after all, it seems that Platonism ought to be consistent with Existentialism, the view that singular propositions exist only if the object with respect to which they are singular exists. See Plantinga (1983).)

\textsuperscript{33}Notwithstanding what Armstrong (1987) might say.
I will instead take the first option, and restrict Patchwork. The restriction that seems non-ad-hoc – and which emerges from The Argument from Mystery – is to contingently instantiated intrinsic natures; that is, to those intrinsic natures that could fail to be instantiated.

1.6 Spatiotemporal Relations

As it stands, Patchwork guarantees the possibility that certain intrinsic natures are all instantiated together, or more simply, that certain types of things co-exist. But the Humean advocate of Patchwork goes one step further. She says that it’s possible for those things to be in any spatiotemporal arrangement whatsoever: so it’s not just that there is a possible world in which there is a donkey body and a human head (on plausible mereological assumptions, the actual world is already such a world), but that a human head can be resting on a donkey body or inside a donkey body or exactly three feet from a donkey body or what have you. (The general claim is supposed to hold with one important qualification: Lewis is willing to allow that there is a maximum possible size for spacetime, and so the spatiotemporal arrangement has to meet the condition that “size and shape permits”.)

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34 Note, my statement of Patchwork is not offensive to the non-Platonist in just the same way that sentences like “There are infinitely many prime numbers” are offensive to the nominalist. The sentence, “There are infinitely many prime numbers,” ostensibly existentially quantifies over prime numbers, and as such, it seems straightforwardly to entail the existence of numbers. My statement of Patchwork, on the other hand, does not even ostensibly existentially quantify over uninstantiated ways, and it doesn’t appear to entail the existence, or even possibility, of objects that are offensive to the non-Platonist. The problem, rather, is that the claim is too weak if there aren’t any uninstantiated intrinsic natures. Nevertheless, some solutions can be effectively deployed to solve both problems.

35 See van Inwagen (2009a). Note that a possibilist like Lewis has no difficulties here: as I’ve already noted, he will just quantify over particulars, whether actual or merely possible, rather than the abstract surrogates.

36 See Cameron (2008) who assumes such a restriction as a matter of course.
So here’s a first pass at capturing the extension\textsuperscript{37}:

**Patchwork\textsubscript{5}:** For any sequence \(\{Q_1,\ldots,Q_N\}\) of non-equivalent intrinsic natures, and any sequence of positive cardinals \(\{a_1,\ldots,a_N\}\), and any spatiotemporal arrangement of \(a_1\) instances of \(Q_1\)...and \(a_N\) instances of \(Q_N\), which fits those intrinsic natures, there is a possible world in which there are exactly \(a_1\) instances of \(Q_1\)...and exactly \(a_N\) instances of \(Q_N\) in that very arrangement (size and shape of spacetime permitting).

Two points of clarification are in order, before I go on to refine the thesis. First, a spatiotemporal arrangement, in the way I am using that term, is a function from sequences of objects to sequences of regions – where an individual will be considered a single-element sequence by courtesy – which, intuitively, are the respective spatiotemporal locations of objects in the sequence. And a certain sequence is in a certain arrangement iff every element in the sequence exactly occupies the region which that arrangement ‘assigns’ to it.

Second, what is it for a spatiotemporal arrangement to fit certain intrinsic natures? It is easy to see what is meant by considering an example. Supposing that particular sizes, for example, are intrinsic properties, the principle shouldn’t guarantee that an instance of an arbitrary intrinsic nature can exactly occupy any which spatiotemporal region: only those which are the same size as that entailed by the intrinsic nature. Now generalize: a spatiotemporal arrangement “fits intrinsic natures \(Q_1\ldots Q_N\)” iff for any spatiotemporal property \(P\) that is intrinsic, and for any intrinsic natures among \(Q_1\ldots Q_N\) that entail \(P\), it assigns to any instance of them a sequence of regions that has \(P\).

With the clarifications out of the way, I can turn my attention to the refinements. On the face of it, Patchwork\textsubscript{5} seems too strong: there’s probably no possible world in which a concrete object is red all over and spatiotemporally overlaps a concrete object that is green all over, because they can’t mereologically overlap one another

\textsuperscript{37}See Darby and Watson (2010) for a very similar formulation.
(there would have to be an entity that is both green all over and red all over), and it is probably not possible for two such concrete objects with no mereological overlap to spatiotemporally overlap. Since a Humean won’t want the principle to guarantee that possibility, it appears necessary to restrict the principle to disjoint spatiotemporal arrangements.\(^{38}\) As Lewis puts it, “Roughly speaking, the principle is that anything can coexist with anything else, at least provided they occupy distinct spatiotemporal positions.”\(^{39}\)

So here’s what the Humean might want to say instead:

**Patchwork**\(^6\): For any sequence \(\{Q_1,\ldots, Q_N\}\) of non-equivalent intrinsic natures, and any sequence of cardinals \(\{a_1,\ldots, a_N\}\), and any disjoint spatiotemporal arrangement of \(a_1\) instances of \(Q_1\) and \(a_N\) instances of \(Q_N\), which fits those intrinsic natures, there is a possible world in which there are exactly \(a_1\) instances of \(Q_1\) and exactly \(a_N\) instances of \(Q_N\) in that very arrangement (size and shape of spacetime permitting).

But restricting the principle in this way makes it too weak. For example, suppose I am identical with a human organism, **being conscious** is intrinsic to me, and my right arm is a duplicate of my left arm. Now, presumably the Humean would want to say this: there is a possible world in which there are two duplicates of me, and they spatiotemporally overlap in the region which one duplicate’s left arm exactly occupies and the other duplicate’s right arm exactly occupies. But that is not guaranteed by the thesis as I put it. Even assuming, as I do, that there are such things as my left arm, my right arm, and me-minus-both-arms, and hence intrinsic natures of each, the principle above still doesn’t guarantee the possibility I mentioned. None of those body parts is conscious, and so none of them instantiates an intrinsic nature that entails **being conscious**. But the possibility I have described is one in which there

\(^{38}\text{A spatiotemporal arrangement is disjoint iff it does not include overlapping spatiotemporal regions in two output sequences.}\)

\(^{39}\text{Lewis (1986b, 88).}\)
are at least *two* things that are conscious.\textsuperscript{40} Of course, we could write in by hand, so to speak, the truths about when some objects compose another one; maybe that wouldn’t be so bad. But we’d also have to write in the conditions under which an object is conscious, and surely we’d prefer a very general principle over a hodge-podge amalgam of a general principle together with very specific bridge principles.

How then should Patchwork be put so that it is neither too strong nor too weak? We ought to remove the restriction to disjoint spatiotemporal arrangements and address the red-and-green-all-over-problem less drastically. We can simply put in a manual override, which says that there can be overlap only if the overlapping intrinsic natures ‘say the same thing’ about the character of any part their instances share.

Here’s a way to make the override precise: ‘provided that if there were such instances in that arrangement, then it would be the case that for any \( x \) and \( y \), if \( x \) is a part of (an element of) one of the instances and \( y \) is a part of (an element of) another of the instances and \( x = y \), then for any intrinsic natures \( Q_x \) and \( Q_y \), \( x \) has \( Q_x \) and \( y \) has \( Q_y \) only if \( Q_x \) and \( Q_y \) are compatible’.\textsuperscript{41}

\textsuperscript{40}Nor would it help to point out that I could have lost my right arm, and so possibly, there is something that duplicates me-minus-right-arm except that it’s conscious. Yes, that thing would have a certain intrinsic nature, and Patchwork would guarantee that it could be instantiated “next to” a duplicate of me, but that possible scenario is still not the one I have envisaged: my scenario involves two human beings who are both conscious and two-armed.

\textsuperscript{41}I will make two comments about this proviso:

1. The thesis thus amended will do the trick only if there are false counterpossibles. For if all counterpossibles are true, then if those instances could not possibly be in the specified spatiotemporal arrangement, then the proviso is automatically satisfied. And some, perhaps most, philosophers think there aren’t any false counterpossibles. Now, as Dorr (2005, \S 4.1) notes, there are plenty of examples of what seem to be non-trivial true counterpossibles, and by analogy, there are plenty of examples of what seem to be false counterpossibles. If, however, you are not convinced by these examples – perhaps because of your semantics for counterfactuals – then, following Dorr, read the proviso as follows: ‘provided that according to the fiction that those intrinsic natures are in that spatiotemporal arrangement, it is the case that for any \( x \) and \( y \)...’; I assume you think some according-to-an-impossible-fiction claims are false.

2. That the proviso invokes a notion of property compatibility highlights the fact that Patchwork is not intended to settle the question of which properties are compatible, i.e., can be instantiated by a single thing. More on that in \S 1.8.2.
Finally, we ought to ensure one more thing. Take the example of my two dop-
pelgangers. The Humean will say not only that there is a possible world in which
they spatiotemporally overlap, but one in which they mereologically overlap as well,
i.e. they both have as a part the very same arm. Some Humeans might think, as
I suggested above, that every case of spatiotemporal overlap involves mereological
overlap. But even if it’s not always the case, the Humean will say that nothing
precludes it.

Thankfully, to ensure this possibility no reformulation is needed as long as I
broaden the definition of ‘spatiotemporal arrangement’ to include a specification of
which of the arranged objects are identical with which others. Thus, one of the
spatiotemporal arrangements that is guaranteed possible by Patchwork is one in
which the left arm of one duplicate is not only colocated with, but also identical
with, the right arm of the other duplicate.

Here then is the right version:

**Patchwork**\textsuperscript{7}: For any sequence \( \{Q_1,\ldots,Q_N\} \) of non-equivalent intrinsic
natures, and any sequence of positive cardinals \( \{a_1,\ldots,a_N\} \), and any spa-
tiotemporal arrangement of \( a_1 \) instances of \( Q_1 \)...and \( a_N \) instances of \( Q_N \),
which fits those intrinsic natures, there is a possible world in which there
are exactly \( a_1 \) instances of \( Q_1 \)...and exactly \( a_N \) instances of \( Q_N \) in that
very arrangement (provided that (1) if there were such instances in that
arrangement, then it would be the case that for any \( x \) and \( y \), if \( x \) is a part
of (an element of) one of the instances and \( y \) is a part of (an element of)
another of the instances and \( x = y \), then for any intrinsic natures \( Q_x \) and
\( Q_y \), \( x \) has \( Q_x \) and \( y \) has \( Q_y \) only if \( Q_x \) and \( Q_y \) are compatible, and (2)

\textsuperscript{42}If one thinks that no object can be exactly located in two distinct regions, one would want
to add a further condition that a spatiotemporal arrangement must meet so that its possibility is
guaranteed by Patchwork: for any \( x \) and \( y \) and \( R_x \) and \( R_y \), if it specifies that \( x = y \), and it specifies
that \( x \) exactly occupies \( R_x \) and \( y \) exactly occupies \( R_y \), then \( R_x = R_y \). And if one thinks that co-
location is impossible, then one will want to add another condition a spatiotemporal arrangement
must meet in order for its possibility to be guaranteed by Patchwork: for any \( x \) and \( y \) and \( R \), if it
specifies that \( x \) exactly occupies \( R \) and it specifies that \( y \) exactly occupies \( R \), then \( x = y \). But both
of these are ‘optional’ add-ons to the principle.

\textsuperscript{43}I am assuming that there \textit{is} such an object as my right arm. As I noted in nt. 41, I have already
made substantively the same assumption in formulating the manual override.
There is a certain ambiguity surrounding the clause “in that very arrangement”: is it supposed to be a restrictive or a non-restrictive clause? If it’s a non-restrictive clause, then the principle is quite strong: it says that there is a possible world in which there are exactly \(a_1\) instances of \(Q_1\)...and exactly \(a_N\) instances of \(Q_N\), period, and that they are in the specified arrangement. There are thus no greater and no fewer than \(a_1\) instances of \(Q_1\), no matter where you would look in that possible world. On the other hand, if it’s a restrictive clause, then the principle merely says that there is a possible world in which there are exactly \(a_1\) instances of \(Q_1\)...and exactly \(a_N\) instances of \(Q_N\) that are in the specified arrangement, which is consistent with there being some other instances of \(Q_1\).

The dialectic should be familiar by now. The Desiderata pull in opposite directions. The first desideratum pulls in the direction of the restrictive reading, since the non-restrictive reading seems to obviously entail the possibility of the following uncontroversial impossibilities: a world in which there is exactly one thing with the intrinsic nature of my laptop and exactly one thing with the intrinsic nature of an electron; a world in which there are exactly two electron-singletons and only one electron; and a world in which the concrete state of affairs my ball’s being round exists but nothing is both round and a ball. All uncontroversially impossible! On the other hand the restrictive reading seems too weak, and hence insufficiently Humean. We face the same weakness that confronted the “at least reading” in section 1.4: the restrictive reading fails to rule out, for example, the bizarre view that any possible world in which there are at least three pleasantly plump things, there are at least four pleasantly plump things.

There are two ways to proceed: one is to stick with the strong (non-restrictive)
reading and note that the principle thus interpreted does not, contrary to appearances, obviously entail any of those uncontroversially impossible situations. How so? Well, suppose the following is true: composite objects, impure sets, and concrete states of affairs are all impossible. That is, the only concreta are simple individual particulars, and that’s the way things had to be. If that supposition were true, then the strong version of Patchwork fails to entail the possibility of any of those uncontroversial impossibilities. On that supposition, after all, there couldn’t be any laptops, electron-singletons, or states of affairs like *my ball’s being round*, and so there would be no corresponding intrinsic natures for Patchwork to guarantee their recombinability. And maybe that supposition isn’t obviously false.44

But even if it’s not obviously false, it’s still an extremely strong claim that a Humean might not want to swallow. 45 So I will instead adopt the weaker (restrictive) reading, albeit with some tweaking. The idea is to simply add a clause to the effect that in the world guaranteed possible, there is nothing else contingent, apart from them (the things in the specified spatiotemporal arrangement) and..., where the ellipses are filled in to make exception for certain things, like their parts and sums of those parts; their members and sets of them and their members; and their constituents and states of affairs constituted by them and their constituents.46 Of course, we might


45And as I noted on p. x, I assume that there are impure sets and sequences.

46Two things to note:

(1) It should be clear that one need not accept all these exceptions or none of them. One might, for example, simply deny the possible existence of concrete states of affairs, but make exception for parts/sums and members/sets. This is what Lewis (1992; 1998) seems to do; moreover, his denial of the possible existence of states of affairs is based, at least in part, on Patchwork. Why does Lewis make an exception to Patchwork for parts and not for constituents? What are the grounds for this distinction? It’s not wholly clear to me. What he *says* is that the constituency relation, even by Armstrong’s lights, is non-mereological, and so a state of affairs and its constituent are “wholly distinct”. This doesn’t seem to explain all that much: of course, if “wholly distinct” means “share no parts in common,” then a state of affairs and its constituent are wholly distinct, but if “wholly distinct” means “share no constituents in common,” then of course they are not wholly distinct (as long as constituency is reflexive). The question then is why should the first sense of
think that this approach still, despite its not being subject to the ‘pleasantly plump problem,’ violates the second desideratum. Why do parts or sums or members or sets or constituents or states of affairs get off scot-free? That’s a good question. An adequate answer to that question will have to await a full discussion of the available arguments for Patchwork. And how one answers that question might well impact what exceptions the Humean can legitimately make. So in the meantime, I will leave the exceptions, if such there be, unspecified. ‘Patchwork’ will be indeterminate between candidate instances of the following thesis schema (an instance of which is obtained by replacing the ellipses with a specification of what exceptions, if any, are made):

**Patchwork Schema:** For any sequence \( \{Q_1, \ldots, Q_N\} \) of non-equivalent

“wholly distinct,” rather than the second, be the sense that’s relevant for making exceptions to Patchwork. My suspicion is that the distinction is ultimately rooted in Lewis’s inability (which I share) to make sense of a non-mereological constituency relation: why is ‘constituent’ an appropriate term to capture the relation between a particular and its associated state of affairs, given the non-mereological character of that relation and the mereological associations of ‘constituent’? And once a more honest term is used, any intuition in favor of excepting states of affairs from Patchwork seems to fall away.

(2) Even with respect to parts and sums, one might be inclined to draw a distinction, since the pressure to make an exception for parts is greater than the pressure to make an exception for sums. The following seems a conceptual impossibility: \( x \) has some proper part and \( y \) is an exact replica of \( x \) but \( y \) lacks any proper parts. Anyone who thought such a thing possible would have to either lack the concept of exact replica (or proper part) or be deeply confused (that’s all I mean by saying it’s a ‘conceptual impossibility’). The following, on the other hand, does not seem to be a conceptual impossibility: \( X \) is a sequence whose elements compose something, and \( Y \) is an exact replica of \( X \), but the elements of \( Y \) fail to compose anything. Someone who has a complete mastery of the concept of an exact replica and who is perfectly lucid might very well think such a thing is possible; perhaps she thinks that the correct answer to van Inwagen’s (1990) Special Composition Question (SCQ) invokes certain facts that are extrinsic to the \( x \)s (contrary to van Inwagen (1990, 12)), or, that even if no such answer is true in the actual world, it is true in some possible world (see Cameron (2007) who argues that there is no good reason to believe that the correct answer to SCQ is necessarily true). And she might even be right. But even if she’s wrong, she doesn’t seem to be conceptually confused in thinking so. That having been said, this explains only why the Humean might want to draw such a distinction, not how she can get away with doing so.

47Again (see nt. 46), we might understand full well the Humean’s motivation to make such an exception, namely, that otherwise she is committed to a claim that is, if not obviously false, extremely radical. So the question, “Why does a Humean want to make an exception for parts and sums and members and sets?”, is a bad question. But that is not the question I mean to ask. I want to know why the best reasons or arguments the Humean has for accepting Patchwork don’t commit her to an exceptionless version of the thesis.
intrinsic natures, and any sequence of positive cardinals \( \{a_1, \ldots, a_N\} \), and any spatiotemporal arrangement of \( a_1 \) instances of \( Q_1 \) and \( a_N \) instances of \( Q_N \), which fits those intrinsic natures, there is a possible world in which there are exactly \( a_1 \) instances of \( Q_1 \) and exactly \( a_N \) instances of \( Q_N \) in that very arrangement and nothing else concrete other than.... (provided that (1) if there were such instances in that arrangement..., and (2) size and shape of spacetime permits).

For the time being, that completes the process of hewing a principle, or principle schema, from the rough timber we started with. In the next chapter, I will turn to some of the far-reaching consequences of that principle. But before I do that, I want to briefly discuss two roads I did not take.

1.8 Two Roads Not Taken

1.8.1 Pointillism

Consider the following: surely it’s possible for me to lose my left arm. If I had, there would be something that had a certain intrinsic nature, Aaron-Minus, which entails a certain size (smallish) and shape (humanish-minus-left-arm). Then Patchwork entails that there is a possible world in which there is something that instantiates Aaron-Minus adjacent to some thing or things, which are in turn sufficiently differentiated from their surroundings, so that an onlooker, even one with a high-powered imaging machine, wouldn’t be able to distinguish me from the things that exist in the envisaged scenario. Is that possible? Given certain views about when composition occurs, the answer is ‘no’. Any case that we might be inclined to describe that way is really a case in which there is an exact replica of me and nothing at all that instantiates Aaron-Minus.\(^{48}\) On any such view, the above description of an ostensibly possible world fails to describe a genuine possibility. Any such view is thus

\(^{48}\)Peter van Inwagen’s (1990) answer to his Special Composition Question delivers this result.
committed to the falsity of Patchwork.\textsuperscript{49}

Someone who holds one of those views about composition might still be inclined to accept some principle that they take to reflect the core Humean intuition, and deny that Patchwork, as I have formulated it, accurately captures that intuition.

An alternative that comes to mind is to retain the “objectual shape” of Patchwork, but restrict it to (intrinsic natures of) the very small: to point-size things (if one is thinking of ‘small’ in measure-theoretic terms) or to simples (if one is thinking of ‘small’ in mereological terms).\textsuperscript{50} Call such a principle, ‘Patchwork\textsubscript{Small}’. Patchwork\textsubscript{Small} would guarantee certain “pointillist” arrangements of local qualities, and, the idea would be, it suffers from no weakness since everything is settled by the intrinsic character and spatiotemporal arrangement of the very small things.\textsuperscript{52} Importantly, Patchwork\textsubscript{Small} would not entail the possibility of an object that instantiates Aaron-Minus adjacent to some thing or things in just the way I described above, since Aaron-Minus is not an intrinsic nature of a point-sized object or a simple.

And there might be independent motivation to adopt such a restriction. Some philosophers, when putting forward a Patchwork-like principle, restrict their principle to the fundamental beings, where those are, roughly, the beings that don’t exist in virtue of any other beings.\textsuperscript{53} They say that any combination of possibilities for those beings is possible, and their principle remains silent about everything else. We

\textsuperscript{49}See Hawthorne et al. (2006) for a more general argument. The general one is nice, but the specific one I have given is adequate for my purposes.

\textsuperscript{50}As should be obvious from the way I formulated the alternative, one could go further still and dispense with the “objectual shape” of the principle. What I mean by that is a principle that says that any intrinsic natures can be ‘placed’ in any spatiotemporal arrangement, without saying how they are distributed over objects, or whether they are had by objects at all.\textsuperscript{51} But this more radical alternative faces at least the same difficulties as the more moderate one I consider in the text.

\textsuperscript{52}See Lewis (1986a). See also further, §2.3.1.3.

\textsuperscript{53}For example, see Schaffer (2010a).
could put this in our preferred terms by simply restricting Patchwork to the intrinsic natures of fundamental things.\textsuperscript{54} Now, if that restriction is combined with the thesis that necessarily, only simples (or point-sized objects) are fundamental, then that will deliver \textit{Patchwork\textsubscript{Small}}.

\textit{Patchwork\textsubscript{Small}} does suffer from a weakness, however. If it’s possible that there are gunky objects – where an object is gunky iff each of its parts has proper parts – then a principle thus restricted will be entirely silent about recombination of \textit{those} sorts of possibilia, since they are neither simple/point-sized nor composed of simples/point-sized objects.\textsuperscript{55} And I’d like to remain neutral, at least for now, on whether there could have been gunk.\textsuperscript{56}

Moreover, to use our more principled guide, \textit{The Argument from Mystery}, if sound, establishes a version of Patchwork that has within its scope the intrinsic natures of macroscopic composite objects. And the thesis I intend to discuss is the thesis established by that argument. So I take leave of \textit{Patchwork\textsubscript{Small}}. Nothing I say in the remainder of the dissertation will directly address it. The Humean I have in mind cannot consistently accept any of the views about restricted composition to which I alluded at the beginning of this section.

\textsuperscript{54}That is, to those intrinsic natures that are possibily the intrinsic nature of something fundamental.

\textsuperscript{55}I assume that necessarily, no gunky object has measure 0. That is obviously the case if mereological gunkiness entails metric gunkiness (see Russell (2010) for a three-fold characterization of gunk: measure-theoretical, mereological, and topological).

The term “atomless gunk” comes from Lewis (1970).

\textsuperscript{56}See Lewis (1991), Sider (1993), and Schaffer (2010b) who argue for or assume the possibility of gunk.

Schaffer (2003) goes further and argues that for all we know, there \textit{is} gunk. Zimmerman (1996) goes further still and argues that there \textit{is} gunk, period. But see Sider (2000b) who gives a compelling reply to Zimmerman’s argument.
1.8.2 Property Recombination

Notice that Patchwork has a certain limitation: the inputs it takes are intrinsic natures, and it patches them together to deliver, as an output, any arrangement of any number of instances of those intrinsic natures. But it does not say what intrinsic natures there are. Of course, some intrinsic natures can be read off a complete description of the actual world: any intrinsic nature that is actually instantiated will show up. And Patchwork’s output, together with the correct answer to the Special Composition Question, will generate some “new” intrinsic natures. But that’s all. What, we might wonder, are the uninstantiated intrinsic natures that can be had by simples? Patchwork has no answer.

Other Hume-inspired recombination principles – David Armstrong’s (1989a) is an exemplar – are more expressive. They guarantee the possibility of certain property combinations instantiated by a single individual. For example, suppose something could have a rest mass equal to half of the electron rest mass and something could have an electric charge of $-2\, \text{C}$ (but nothing actually has both). Then this principle would guarantee that there could be something that has a rest mass equal to half of the electron rest mass and an electric charge of $-2\, \text{C}$. Of course, the principle should not guarantee that any possible properties whatsoever are co-instantiable – cowhood and non-cowhood aren’t co-instantiable, for example – unless the class of properties is very sparse. The principle has to be restricted in some way.

How should that restriction be put? Here I consider two approaches. One might

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57 See also Lewis (2009) and Saucedo (2011).

58 And there is a natural extension of the principle to the possibility of certain relation combinations instantiated by a single sequence.

59 Suppose properties are just universals, and it so happens that all universals are freely recombinable. Then the principle could say: all properties whatsoever are co-instantiable. Armstrong (1989a) holds something like this, except he allows that some universals share a common constituent (in some sense of ‘constituent’), and are thus not co-instantiable. So even he needs some restriction.
restrict the principle to *fundamental* properties. The distinction I have in mind between fundamental and non-fundamental properties assumes the following metaphysical picture: when God is legislating what properties things have, he doesn’t have to go through the trouble of legislating *all of them*. He lays down which things instantiate which fundamental properties, and all the other properties automatically fall into place; and they are, moreover, instantiated in virtue of the instantiation of the fundamental properties.

One may or may not find the distinction intelligible (I do); and one may or may not think the extension of both categories of property is non-empty (I’m not sure). Regardless, a principle that allows for any recombination of fundamental properties seems to obviously imply the possibility of an uncontroversially impossible situation: determinates of a single determinable are one major source of these impossible situations. It is hard to know what the fundamental properties are (if there are any) but presumably absolutely determinate mass properties are all fundamental (if there are any). But if every determinate mass property is fundamental, then a principle that allows for any recombination of fundamental properties implies that an object can have a mass of both 2 kg and 3 kg. And that’s uncontroversially impossible.

Another restriction we might consider is to properties that have no proper constituents. Here’s the picture the distinction reflects: some properties are built up from other constituent properties (the composite properties). Some aren’t (the simple properties); they’re the ultimate constituents of properties. This way of restricting a recombination principle has the virtue that if there are composite (non-simple) properties, we can simply restrict the principle to such properties.

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I should note that I do not mean to indicate a preference for one particular way of characterizing fundamental mass properties/relations, viz. non-comparatively as opposed to comparatively (like *being an x and a y such that x is twice as massive as y*). Perhaps properties like *having a mass of 2 kg* hold in virtue of fundamental comparative relations (see Dasgupta (2013)). I have no horse in that race. (If one assumes that *mass betweenness* is the only fundamental relation in the vicinity, then there might not be any incompatibilities in the offing; but there are serious doubts about whether that would provide an adequate superveniency base, a role for fundamental properties that is commonly held to be non-negotiable.
properties, then properties like **having a mass of 2 kg** are probably not simple: it has a constituent **having a mass**. And it is also suggestive of a less sweeping restriction. As Armstrong (1989a) points out, a principle can guarantee the recombiningability of composite properties as well, as long as those properties do not share any common constituents. So the principle would be this: any set of non-overlapping properties are recombiningable. (Simple properties, if there are any, would then just be a special case, since no two fundamental properties share a common constituent.)

Thus, the properties **cowhood** and the property **non-cowhood** are not guaranteed by the principle to be co-instantiable since they share the constituent **cowhood**. Similarly, the properties **having a mass of 2 kg** and **having a mass of 3 kg** are not guaranteed by the principle to be co-instantiable since they share the constituent, **having a mass**.

But this approach faces several obstacles. First, it’s not at all obvious that any properties have proper constituents at all. Second, even supposing there are some that do have proper constituents, it’s not at all obvious that the lack of shared constituents suffices for recombiningability.

Perhaps one of the two proposed restrictions can be made to work. Or maybe an alternative restriction would do better than both. But I will set aside the issue

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61 Here’s an example of a view according to which some properties have proper constituents (actually, bona fide proper parts), but which is such that some properties that do not share any constituents are obviously not recombiningable: a property is just a set of its this and other-worldly instances, and sets have as parts their subsets. (This is in fact David Lewis’s view.) So **cowhood** and **non-cowhood** both have proper parts all right, but nothing is a proper part of both (excepting the empty set, i.e. the impossible property, which is part of every property, given Lewis’s view. If we counted that as overlap then the principle would be trivialized.)

62 A promising approach might be to recast the second proposal in terms of **metaphysical definitions**, or **non-modal essences** (see §3.2.3.2), and their elements.

63 Here it is helpful to think of the different roles that *(perfect)* naturalness is supposed to play: see Lewis (1983b), Sider (2011), and especially Dorr and Hawthorne (Forthcoming). Some such role or cluster of roles – excluding the very role of recombiningability itself (or what Dorr and Hawthorne (Forthcoming) call ‘Independence’) – might be used to specify the class of properties to which the Humean recombination principle is restricted. However, it’s not at all clear that these approaches will fare any better. As Dorr and Hawthorne (Forthcoming) note, determinate mass properties
of whether any such restriction can be made to work, since as far as I can see the suggested recombination principle is logically independent of Patchwork and isn’t established by The Argument from Mystery, and I am here concerned with Patchwork and the best argument for it. Investigating the viability of a property recombination principle is a project I intend to take up in the future, and doing so is not necessary for pursuing the project of this dissertation.

Would seem to make for similarity, and be the only plausible candidate in certain possible scenarios that distinguishes between two non-duplicates – two roles that are associated with perfectly natural properties – but are not recombinable, as I have pointed out.

64You might be wondering about that claim of independence: why, after all, doesn’t Patchwork entail an Armstrongian principle about the co-instantiability of non-overlapping properties (or worse, the co-instantiability of any properties)? Aren’t properties things, and doesn’t each one have a unique intrinsic nature? (It’s not obvious they each have a unique intrinsic nature. But I’ll allow my interlocutor that assumption for the sake of argument.) Doesn’t Patchwork then already guarantee their recombinability?

Well, no. Patchwork guarantees the possibility of the existence and arbitrary spatiotemporal arrangement (with some restriction) of instances of any intrinsic natures; it does not guarantee the possibility of those instances standing in any which relation, instantiation included. To think otherwise – that is, to think that Patchwork as it stands guarantees that possibility – is, I suspect, to be misled by a certain picture of how instantiation works, one which is in fact encouraged by Armstrong: the picture involves “hooks” spread out in spacetime (or maybe the hooks just are regions of spacetime) and qualities attached to these hooks, by being located there. I think this picture is entirely misguided, but even if it were right in rough outline, there is an element of the picture that everyone should agree is misleading: ordinarily, when distinct things hang on hooks, the things occupy different positions; but if properties are instantiated by being located where their bearers are, then presumably, when properties are co-instantiated, they are co-located. Patchwork doesn’t allow for that unless the co-located things have the same intrinsic nature, and ex hypothesi, different properties have different intrinsic natures.
2.1 Two Sorts of Implications

Patchwork is a very powerful principle: it implies many philosophically interesting and controversial theses. Some of its power has been appreciated by other philosophers, but much of its power has gone unnoticed.

Patchwork says, roughly, that given any intrinsic natures and spatiotemporal arrangement, it is possible for instances of those intrinsic natures to be in that spatiotemporal arrangement. So one fairly straightforward sort of implication has as its source the conjunction of Patchwork and some truths about what intrinsic natures there are. Such a conjunction will imply that certain scenarios are possible. Of course, that’s not always interesting; whether it is depends on what those scenarios are. It’s not terribly interesting (although perhaps entertaining) to learn that it’s metaphysically possible for a rhinoceros to wear a baseball cap. But it would be of considerable philosophical interest to learn, say, that it’s metaphysically possible for the laws of nature to be different from what they actually are, or for there to be spacetime with a hole in it.

But there is, clearly enough, another sort of implication - running in the other “direction” - which has as its source the conjunction of Patchwork and some truths about which scenarios are impossible. Such a conjunction will entail that certain properties are neither intrinsic natures nor entailed by any: they are necessarily extrinsic to anything that has them. Again, that’s not always interesting; whether it
is depends on what those properties are. It’s not terribly interesting (and not even mildly entertaining) to learn that the property being accompanied by a lizard is necessarily extrinsic to anything that has it, or that the property being a round square is as well (of course, it necessarily is not had by anything). But it would be of considerable philosophical interest to learn that, say, causation is necessarily extrinsic to anything that instantiates it, i.e., to any pair of events whose first element caused its second.

For the most part, the implications that have been noticed by other philosophers are of the first sort. These other philosophers first note that such-and-such is an intrinsic nature and so-and-so is an intrinsic nature, and then they go on to argue that Patchwork (which they usually take to be true) implies the possibility of a scenario involving instances of the such-and-such and the so-and-so. Rarely, if ever, do they note implications of the second sort. That’s a serious lacuna, since those are, to my mind, the more interesting implications. Indeed, I will spend the bulk of this chapter on implications of the second sort. But let me begin by briefly reviewing a few of the interesting ones of the first sort.

1I will not discuss the alleged implication of an unrestricted Patchwork that there is no set of nonsets (Lewis 1986b, §2.2; Nolan 1996) since that is not implied by Patchwork all by itself – or even together with certain truths about what intrinsic natures there are – but only by Patchwork in conjunction with the thesis expressed by an infinitary analogue of the Barcan Formula (roughly, that anything that can exist does exist), a thesis that is indeed implied by Lewis’s Modal Realism and Williamson’s Necessitism (Sider 2009), but which seems clearly false.

Note to the reader: throughout this chapter I unqualifiedly assert that certain implications hold, assertions which are only warranted assuming a proposition that appears to be true, but which I come to reject – or consider rejecting – in the final chapter of this dissertation. So all such assertions should be read as though they were qualified by an ‘apparently’. I generally omitted the qualifier in the text so that this dissertation has the virtue of suspensefulness; indeed, I considered omitting this note to the reader so that this dissertation would exemplify the virtue of suspensefulness to a maximal degree. However, I decided that the virtue of consistency outweighed the virtue of suspensefulness, and that I had pretty much runied the suspense by writing an Abstract and Preface.
2.2 Generating Possibilities

2.2.1 The Laws are Contingent

Perhaps the most obvious implication of Patchwork is with regard to the contingency of the laws of nature. Patchwork implies that for any law (with an important qualification), there is a possible scenario whose obtaining is inconsistent with that law. In other words, that the laws of nature are contingent.\(^2\) Now for the qualification: the implication holds not with respect to all laws, but with respect to a large class of them, viz. those that are non-probabilistic and relate the intrinsic properties of the occupants of disjoint regions of spacetime.\(^3\)

The basic idea is clear enough: for any intrinsic natures, Patchwork guarantees the possibility that they are instantiated in any which arrangement (subject to proviso about overlap). From which it follows that any law that prohibits any of those arrangements is contingent. But any law that is non-probabilistic and relates the intrinsic properties of the occupants of disjoint spatiotemporal regions will prohibit some such arrangement of some intrinsic natures.\(^4\)

\(^2\)As Lewis puts it, “Another use of my principle is to settle – or as my opponents might say, to beg – the question whether laws of nature are strictly necessary” (1986b, 91).

\(^3\)To delineate a bit more precisely the class of laws for which the implication holds, let us say that a law \(L\) is non-probabilistic and relates the intrinsic properties of the occupants of disjoint regions of spacetime iff for some spatiotemporal regions \(R_1\ldots R_n\) and intrinsic properties \(Q_1\ldots Q_n\), there is some region \(R_{n+1}\) (disjoint from the other regions) and intrinsic nature \(Q_{n+1}\) (which ‘fits’ region \(R_{n+1}\)) such that \(L\) entails that if an exact occupant of \(R_1\) has \(Q_1\) and \(\ldots\) an exact occupant of \(R_n\) has \(Q_n\), then no exact occupant of \(R_{n+1}\) has \(Q_{n+1}\). (And even more precise would be an infinitary version of the right side.) Note that even some laws that appear probabilistic - say they assign some nonzero conditional probability to more than one state in the phase space at a certain time, conditional on the state of the system at another time - will be considered, by my definition, non-probabilistic, as long as they rule out the instantiation of some intrinsic nature in some spatiotemporal region (perhaps conditional upon the instantiation of other intrinsic properties elsewhere and elsewhen).

\(^4\)This follows from the fact that every possible intrinsic property is entailed by at least one intrinsic nature ((T\(8\)) in Appendix §A), together with my definition of ‘law that is non-probabilistic and relates the intrinsic properties of the occupants of disjoint spatiotemporal regions’. Or at least it follows assuming that necessarily, exact occupants of disjoint regions of spacetime are mereologically disjoint. See §5.
For example, consider the Law of Conservation of Linear Momentum. It is a non-probabilistic law, and it relates (among other things) the rest mass and instantaneous velocity of an isolated particle at one time to its rest mass and instantaneous velocity at another time. If that law were necessary, then there would be no possible world in which, say, some lonely particle has a certain rest mass at \( t_1 \), it follows a trajectory in spacetime such that its velocity remains constant until \( t_2 \), but its rest mass varies during the interval \([t_1, t_2]\). And that would appear to be a violation of Patchwork. (That is, assuming that all determinate rest mass properties are intrinsic.)

One should not underestimate the significance of this implication. The suggestion that laws of nature – all laws of nature – are absolutely necessary has attracted a significant number of adherents in recent years. And at least with respect to some of those adherents, it is clear that they think there are laws that are non-probabilistic and relate the intrinsic properties of the occupants of disjoint spatiotemporal regions.\(^5\) So it is of considerable interest that Patchwork rules out such views.

2.2.2 4D-ism is Possible

As I noted in the Preface (p. xii), I assume throughout this dissertation that particulars persist by having instantaneous (or very short-lived) temporal parts. According to this view of persistence, the world is a world of stages – the thesis I will call “four-dimensionalism” – some of which have ordinary particulars as sums. (The stage view of persistence (Sider 1996; Sider 2011, §5.6; Hawley 2001) also implies four-dimensionalism. It’s just that according to the stage view, the stages are the ordinary particulars.) I temporarily suspend that assumption about persistence, along with four-dimensionalism, in order to argue that Patchwork implies at least the metaphysical possibility of four-dimensionalism.

It seems possible for there to be an instantaneous (or short-lived) being that is

\(^5\)See Shoemaker (1980); Molnar (2003); Bird (2007).
an exact replica of me right now.\textsuperscript{6} And the same goes for everything else at every moment. And each of those instantaneous beings would have some intrinsic nature.\textsuperscript{7}

So, as Lewis (1983c) points out, Patchwork guarantees that there is a possible world in which there are distinct instances of those intrinsic natures arranged in such a way that there are no enduring objects – that is, a world where four-dimensionalism is true – and which resembles our world with respect to the distribution of all temporally local intrinsic properties.\textsuperscript{8} It would be a world very much like ours, but a world of stages.

Lewis went further than the claim that such a world is possible. He argued that the fact that it’s possible, coupled with a few other premises, implies that our world is a world of stages. To be sure, Hawthorne et al. (2006) have argued that those few other premises are dubious. But regardless of whether those other premises are true – or whether there is some other successful argument from the possibility of some such world to the actuality of one – the fact that such a world is possible is, I think, of independent philosophical interest.

\textsuperscript{6}I am invoking a primitive four-place predicate, ‘x at \(t_1\) is an exact replica of y at \(t_2\)’, which is I think well understood. The rough idea is that a snapshot of x taken at \(t_1\) would be indiscernible from a snapshot of y at \(t_2\). (Two points:

1. The four-dimensionalist, as usual, can define the locution in terms of the two-place ‘x is an exact replica of y’, ‘x is a (timeless) part of y’, and ‘x exists at \(t\)’. The three-dimensionalist will have to take it as primitive, but hopefully one that is sufficiently well-understood.

2. In light of what I note in Appendix A, I am really invoking a six-place predicate, ‘x at \(t_1\) in \(w_1\) is an exact replica of y at \(t_2\) in \(w_2\)’.

\textsuperscript{7}From \(\textnormal{T10}\) in Appendix A.

\textsuperscript{8}Let us say this:

‘\(P\) is a temporally local intrinsic property’ \(=_{df}\) Necessarily, for any x and t, if x has P at t, P is intrinsic to x at t

The predicate ‘\(P\) is intrinsic to x at \(t\)’ is defined in the natural way in terms of the four-place (or six-place predicate) in nt. 6.
2.2.3 Max Black World Is Possible

It is possible for there to exist a perfectly homogeneous iron sphere, one meter in diameter. So there is an intrinsic nature, $Q_{\text{SPHERE}}$, that is instantiated by any such sphere. But then Patchwork implies that there is a possible world in which there are exactly two instances of $Q_{\text{SPHERE}}$, two meters apart, and nothing else (perhaps other than their parts, sums of those parts, and sets thereof). And that’s a very interesting implication since, as Max Black (1952) noted, it conflicts with a principle that has had a diverse and illustrious philosophical following: the Identity of Indiscernibles (PII). Some Continental Rationalists, like Leibniz and Spinoza, had their reasons for accepting PII (their commitment to a version of the Principle of Sufficient Reason); some radical empiricists have their own reasons for accepting PII (their commitment to the idea that for any $x$ and $y$, if one can’t distinguish, on purely empirical grounds, between $x$ and $y$, then $x = y$); and those bundle-theorists who think that particulars are constituted by or composed of recurring universals (and only recurring universals) have their own reasons for accepting PII. But they’re all

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9The principle is this: Necessarily, for any $x$ and $y$, if for any property $P$, $x$ has $P$ iff $y$ has $P$, then $x = y$. The principle comes in different strengths, however, corresponding to the scope of the universal quantifier that binds ‘$P$’. If it is wholly unrestricted, and there are haecceities, like being identical with Aaron, then the principle is trivial. If the principle is restricted to intrinsic properties, then the principle is extremely strong: it would be impossible for there to be more than one thing with the same intrinsic nature, period, no matter what else there is. I have in mind a mid-strength principle, in which the quantifier is restricted to qualitative properties, both intrinsic and extrinsic.

10At least Leibniz explicitly relies on that principle in his defense of PII (1969, 699); but it may follow from other aspects of Leibniz’s philosophy of possibility (Forrest 2010, §4).

11See Forrest (2010).

12See Armstrong (1989b) and Loux (1998). Rodriguez-Pereyra (2004) however, argues that such bundle-theorists (of universals) are not committed to PII, since they could hold that universals can compose/constitute more than one particular. As far as I can see, his defense of this suggestion (a) amounts to a denial of the bundle-theorist’s central contention that particulars are bundles of universals (which is traded in for the claim that particulars are instances of universal bundles), and (b) involves a highly counter-intuitive claim that wherever you find a particular, you’ll find a distinct bundle of universals, of which the particular is an instance, that is colocated with it. But his suggestion might well be right even if his defense fails.
wrong if Patchwork is right.\textsuperscript{13}

2.3 The Humean Package

As I noted above, the philosophically interesting implications of Patchwork are not limited to propositions reporting that a certain scenario is possible (or propositions entailed by those). Patchwork also implies philosophically interesting propositions reporting that a certain property is neither an intrinsic property nor entailed by one. In particular, I will argue that it implies two central Humean theses about the extrinsicality of causal and nomic relations (and a third thesis about the extrinsicality of temporal-direction relations along the way). One can see that on Hume’s own view, nomic and causal relations are indeed necessarily extrinsic to their bearers. On his view, a law is just an exceptionless true generalization, of a certain, special, sort. And as we know, on at least one of Hume’s accounts, causation holds between two events when they are an instance of such a law, the one is temporally prior to the other, and they are spatio-temporally contiguous.\textsuperscript{14} But whether a certain non-trivial universal generalization is a law, and hence true, depends on what’s going on with everything there is and on that’s being all that’s going on. So its being a law can hardly be intrinsic to a sequence of events. And the same holds, \textit{mutatis mutandis}, for causation, since to say that a certain event caused another \textit{just is to say}, at least in part, that a certain non-trivial universal generalization is a lawful truth. And

\textsuperscript{13}There is a certain defense of PII against Max Black’s conceived world that goes like this: the possible world which Black has conceived of has been misdescribed. In that world, the response goes, there is just one sphere: either one bi-located sphere (Hawthorne 1995) or one sphere in a spacetime with a non-Euclidean geometry (Hacking 1975). I’m not sure whether these are effective responses to Max Black’s conceiving. I bring them up only to point out that they are wholly ineffective as replies to an argument from Patchwork (not that they suggested otherwise). Patchwork, as it stands, straightforwardly implies that there is a possible world in which there are \textit{two} unaccompanied instances of intrinsic nature $Q_{\text{SPHERE}}$, 2 meters apart; to describe such a world as one in which there is just one sphere would be to misdescribe it.

\textsuperscript{14}Hume (1739, §I.III.xiv.31).
even on contemporary Hume-inspired views of laws and causation, which differ in important ways from Hume’s own views, the denial of intrinsicalness is preserved.\textsuperscript{15}

I will then argue further that the conjunction of those theses – or, more accurately, a thesis that is slightly stronger than that conjunction, but which too is implied by Patchwork – implies that the distribution of causal and nomic properties and relations globally supervenes on the distribution of perfectly natural non-nomic non-causal properties and relations, yet another central Humean thesis. Patchwork can be used to “eliminate” certain possibilities, not just to “generate” them.

Thus, somewhat surprisingly, Patchwork implies much of the rest of a Humean package, whose constituent theses are all, in some sense, ways of articulating Hume’s claim that the contents of the world are “entirely loose and separate”. (Of course, the contingency of laws, an implication that has been recognized already, is also a constituent of that package.) And the implication of that is that certain prominent packages of views in contemporary metaphysics are inconsistent. The package of views endorsed by David Armstrong is an excellent example. While Armstrong has been a prominent defender of Patchwork, or something that implies it (1989a; 1997), here is what he has to say about the extrinsicality of causal and nomic relations:

I now indicate briefly a consequence of combining the identification of singular causes with instantiations of a law (or laws) with my view, argued at length elsewhere, that laws are relations of universals...

Hence singular causation will be a completely intrinsic relation. The causal structure of a process will be determined solely by the intrinsic character of that process. This result was unsought, but I think it is a welcome consequence of my theory of laws. By contrast, any Hume-inspired theory of laws makes the lawlike nature of an instantiation of the law an extrinsic property of the instantiation. (2004)\textsuperscript{16}

That is, he outright denies the extrinsicality of causal and nomic relations. And,

\textsuperscript{15}For qualifications of this claim, see §2.3.1.1.

\textsuperscript{16}See also Tooley (1987) and Menzies (1999) about causation.
in much of his work (1983; 1989a; 1997), he has denied the global supervenience thesis.\textsuperscript{17} My impression is that he is far from being alone in his choosiness. Patchwork commands a much more widespread allegiance among contemporary philosophers than the other Humean theses.\textsuperscript{18}

Let's call any position which, like Armstrong's, accepts Patchwork but denies at least one of the other Humean theses I mentioned, a ‘Half-Hearted Humean’ position. The upshot of my argument is that contrary to appearances, any Half-Hearted Humean position is inconsistent. The only viable options are Wholehearted Humeanism and a denial of Patchwork. The arguments will follow shortly, but first I'll state the remaining theses more precisely.

2.3.1 Stating the Other Humean Theses

2.3.1.1 Delocalization of Laws

Let's call the second Humean thesis the ‘Delocalization of Laws’. It says that no matter how wide a glance we cast, we won't be able to see, just by inspecting the intrinsic properties and relations that are instantiated, what the laws are; in the best case, when we glance at all the goings-on throughout spacetime, we would still have to see that there is nothing else going on. Put less imagistically, we can say this: necessarily, for any sequence of events $E$, and any proposition $L$, any relation which, (a) entails that $L$ is a law and (b) is instantiated by $E$, is extrinsic to $E$ (and \textit{a fortiori} to the subsequence that is an instance of $L$).\textsuperscript{19}

Truth be told, there might be some exceptions to the thesis in its full generality,

\textsuperscript{17}See also Tooley(1987) and Carroll (1994).

\textsuperscript{18}Although heterodoxy about Patchwork has seen a recent upsurge, coming from the ranks of so-called “causal essentialists”; see, e.g., Bird (2007, §8.1.1.1) and Molnar (2003, §11.3). See also §5.1.3.

\textsuperscript{19}Where ‘$R$ entails proposition $p =$$_{df}$ Necessarily, for any $x$, $x$ has $R$ only if $p$ is true.
even according to a Wholehearted Humean. Suppose, for example, there is a maximum possible size of spacetime, and consider a possible world \( W_1 \) in which spacetime has that size and is “filled to the brim”. Suppose further a Humean view of laws, according to which laws are simply patterns in the phenomena. (Lewis’s (1973b; 1994) Best-System Analysis is a good example. On this view a proposition is a law iff it is a theorem of the deductive system that strikes as good a balance as truth will allow between simplicity and strength.) It seems clear that any proposition \( L \) which is a law in \( W_1 \) is also a law in a world \( W_2 \) in which the global sequence of events in \( W_1 \) is duplicated; after all, there couldn’t be anything else to “overturn” that law in \( W_2 \). So in \( W_1 \), any relation that for some \( L \) entails that \( L \) is a law and is instantiated by the global sequence of events, is intrinsic to that sequence.

But this case is, as we might say, “pathological”: once you duplicate that sequence with respect to its non-nomic properties and relations, you’ve automatically duplicated it with respect to its nomic properties and relations as well. So the reason that sequence is intrinsically such that \( L \) is a law is not because law \( L \) is like “glue”; it’s because the truth (and lawhood) of \( L \) happens to track the intrinsic non-nomic features of that sequence, no matter the environment in which it is embedded.

This suggests that we can isolate the exceptions to the Delocalization of Laws in the following way. Say a nomic property or relation is one such that for some proposition \( L \), it entails that \( L \) is a law. Every other property and relation is non-nomic. Then say that \( x \) is a non-nomic duplicate of \( y \) iff for any intrinsic non-nomic property or relation \( R \), \( x \) has \( R \) iff \( y \) has \( R \). Finally, say that a sequence/relation pair is “nomologically innocent” iff necessarily, any non-nomic duplicate of that sequence instantiates that relation.

20Actually, for a reason I will discuss in §2.3.1.3, we need to be slightly more liberal about nomic duplication and restrict the required sharing to perfectly natural properties and relations (otherwise, pretty much every pair consisting of a sequence and a nomic relation it instantiates will come out nomologically innocent). So officially, \( x \) is a non-nomic duplicate of \( y \) iff for any intrinsic perfectly natural non-nomic property or relation \( R \), \( x \) has \( R \) iff \( y \) has \( R \).
Here then is the official statement of the thesis:

**Delocalization of Laws:** Necessarily, for any sequence of events $E$ and any nomic relation $R$ it instantiates (where the pair $\{E, R\}$ is not nomologically innocent), $E$ has $R$ extrinsically.

### 2.3.1.2 Delocalization of Causation

Delocalization of Causation, which is what I’ll call the third Humean thesis, is a natural counterpart of the Delocalization of Laws. It says that no matter how wide a glance we cast, we won’t be able to see, just by inspecting the intrinsic properties and relations that are instantiated, whether there is any causation going on between the events.

In order to make this precise, let’s start with the basics. I assume that there are events, that there is such a relation as *causation*, and that it holds, whenever it does, between two events.$^{21}$

Now, keeping things simple, consider three events: $E_1$, $E_2$, and $E_3$. Say $E_1$ caused $E_3$ and $E_2$ caused $E_3$, and that was all the causation that went on between the three of them. Then the following relations that the ordered triple $\{E_1, E_2, E_3\}$ instantiates are all, what I will call, *causal relations*:

- being an $x,y,z$ such that $x$ caused $z$
- being an $x,y,z$ such that $y$ caused $z$
- being an $x,y,z$ such that $x$ caused $z$ and $y$ caused $z$ and no other causation went on between $x$, $y$, and $z$

In general, any relation,

being an $x_1,\ldots,x_n$ such that $\Phi(x_1,\ldots,x_n),$

which entails

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$^{21}$Lewis (2004b) suggests, in light of cases of causation by omission, that *causation* is not a relation at all. However, taking account of this suggestion here would unduly complicate matters, and I don’t think anything for which I will argue essentially requires the assumption that it is a relation.
being an \( x_1, \ldots, x_n \) such that for some \( x_i \) and \( x_j \) \( x_i \) caused \( x_j \)

is a causal relation.\(^{22}\)

Then the thesis is this:

**Delocalization of Causation:** Necessarily, for any sequence of events \( E \), and any causal relation \( CS \) it instantiates, \( E \) has \( CS \) extrinsically.

I will make two comments here. First, beware of confusion. In the philosophical literature on causation, one will find a thesis that goes by the name ‘Intrinsicness’. That thesis is roughly this: any intrinsic duplicate of a certain causal process (suitably qualified), in a world with the same laws of nature, will also be a causal process.\(^{23}\) But the italicized phrase makes all the difference. One who endorses the Delocalization of Causation is not thereby committed to denying Intrinsicness, because the latter is consistent with the claim that for every causal process, there is *some* duplicate of it - in a world with different laws - that is not a causal process. Lewis, at least at one time, accepted the Delocalization of Causation and Intrinsicness.\(^{24}\) This was not a logical blunder.

Second, just as with respect to the Delocalization of Laws, an exception ought to be allowed for. Suppose again a Humean view of laws, according to which laws are simply patterns in the phenomena. And suppose further that Intrinsicness – the thesis I just mentioned – is true. Then the global sequence of events in the “maximal” world \( W_1 \) I considered above – together with any causal relation it instantiates - is a counterexample to the unrestricted version of Delocalization of Causation. After all, any world \( W_2 \) in which that sequence is duplicated is one in which all and only the laws of \( W_1 \) are true. So then by Intrinsicness, all the same causal facts hold of the duplicate. So any causal relation it instantiates is intrinsic to it.

\(^{22}\)So causation, its converse, and the disjunction of the two, are all causal relations.

\(^{23}\)See Hall (2004c; 2004b).

\(^{24}\)He came to reject Intrinsicness in his (2004a) on independent grounds.
But here again we can easily isolate the exceptions, and in an analogous fashion. Say \( x \) is a *non-causal duplicate* of \( y \) iff for any intrinsic non-causal relation \( R \), \( x \) has \( R \) iff \( y \) has \( R \).\(^{25}\) Then say that a sequence/relation pair is “causally innocent” iff necessarily any non-causal duplicate of that sequence instantiates that relation. Then the thesis is really this:

**Delocalization of Causation:** Necessarily, for any sequence of events \( E \), and any causal relation \( CS \) it instantiates (where the pair \( \{ E, CS \} \) is not causally innocent), \( E \) has \( CS \) extrinsically.

### 2.3.1.3 Global Supervenience

The second and third Humean theses each gives a *necessary* condition for determining whether a certain proposition is a law or that causation is happening between some events (respectively): inspect all the events there are and see *that* those are all the events. Any inspection less extensive than that will be inadequate to make those determinations.

But what, if anything, is adequate? The fourth Humean thesis, which I shall call ‘Global Supervenience,’ adds that it is sufficient to examine the particular matters of fact in order to make those determinations. As I put it earlier, the distribution of causal and nomic properties and relations globally supervenes on the distribution over all concreta of non-causal, non-nomic properties and relations.

This thesis is slightly different from the global supervenience thesis explicitly endorsed by Lewis (1986a, Introduction). Lewis’s thesis is that all the facts about a world globally supervene on the distribution of local intrinsic qualities and spatiotemporal relations.\(^{26}\) Lewis intends his claim to be a ‘contingent supervenience claim,’

\(^{25}\)Again, as in nt. 20, we actually need to be a bit more liberal about causal duplication (otherwise, pretty much every pair consisting of a sequence and a causal relation it instantiates will come out causally innocent). So officially, \( x \) is a *non-causal duplicate* of \( y \) iff for any intrinsic perfectly natural non-causal relation \( R \), \( x \) has \( R \) iff \( y \) has \( R \).

\(^{26}\)Where a local quality is one that needs nothing bigger than a point at which to be instantiated.
by which is meant that there is a restriction on the possible worlds for which the supervenience is alleged to hold. His is not a claim that for any two possible worlds, if they are alike with respect to $X$, they are alike with respect to $Y$. It’s that for any two possible worlds like ours in some specified respect, if they are alike with respect to $X$, they are alike with respect to $Y$. Not so the thesis I am considering. Mine is an unrestricted quantification over possible worlds. Thus, Global Supervenience is in one respect slightly stronger than Lewis’s thesis. On the other hand, it is also weaker in that it broadens the subvening set to include all non-causal non-nomic properties and relations, rather than just local intrinsic qualities and spatiotemporal relations.

That being said, Global Supervenience seems to best capture Lewis’s central contention. After all, he concedes that physics might teach us that there are irreducible external relations beyond the spatiotemporal ones or emergent intrinsic qualities that aren’t local. What he really wants to resist, he says, are philosophical arguments for the falsity of his supervenience claim. In particular, he wants to resist the claim that certain “commonplace features of the world,” such as causation and laws of nature, fail to so supervene. That’s where he puts his philosophical foot down. Whatever else physics teaches us, causation and laws of nature won’t be irreducible features of any world. And that’s just Global Supervenience.

But stating Global Supervenience carefully presents something of a challenge. The difficulty does not lie in spelling out what ‘globally supervenes’ means. That’s been hashed out already a great deal, and I will simply follow others in defining it thus: where $A$ is a set of properties and relations, let an $A$-isomorphism be a function $f$ that is one-to-one and for any property or relation $R$ in $A$, and any sequence $X_1$ of objects in $f$’s domain, $X_1$ instantiates $R$ iff the sequence of images (under $f$) of the

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27 Some philosophers have indeed claimed that Bell’s theorem implies just that. See Maudlin (2007).
elements of $X_1$ instantiates $R$.\textsuperscript{28}

Then,

\[
\text{‘a set } A \text{ of properties and relations globally supervenes on a set } B \text{ of properties and relations’} \equiv_{df} \text{for any worlds } w_1 \text{ and } w_2, \text{ every } B \text{-isomorphism from } w_1\text{’}’s \text{ domain onto } w_2\text{’}’s \text{ domain is an } A \text{-isomorphism. (In our case, there will be a restriction to the \textit{concrete} domain of the two worlds.)}
\]

The difficulty, rather, lies in distinguishing between causal and non-causal relations and nomic and non-nomic relations.\textsuperscript{29} My discussion of the Delocalization theses suggests a straightforward way to distinguish between them: say (as I have already done) that a \textit{causal relation} is one that is causation (and converse of causation) entailing, and otherwise it’s non-causal; and a \textit{nomic relation} is one such that for some proposition $L$, it entails that $L$ is a law; otherwise it’s non-nomic. But defining those terms that way and leaving Global Supervenience as is would have the distinct disadvantage of trivializing the thesis. If you take any causation-entailing relation and disjoin it with a relation that is not a causation-entailing relation or law-entailing relation, like \textit{being temporally prior to}, the resulting disjunctive relation is not a causation-entailing relation or law-entailing relation. But then it is far too easy to see that the causation-entailing relations (and the same with the law-entailing relations) globally supervene on the distribution of relations that are neither causation-entailing nor law-entailing. Here’s a simple recipe for cooking up, in any world, just a few non-causation-entailing non-law-entailing relations that will settle all the causal facts: take a maximally specific causation-entailing relation - one that specifies, down to the last detail, all the causation that is happening between events in that world - and disjoin it with some relation, \textbf{DECOY}, such that neither it nor its

\textsuperscript{28}Where a sequence $X_2$ is ‘a sequence of images of the elements of $X_1$’ only if it is isomorphic to $X_1$ with respect to order in the sequence; that is, for any $a$ and $b$, if $a$ comes before $b$ in $X_1$, then $f(a)$ comes before $f(b)$ in $X_2$.

\textsuperscript{29}See Earman and Roberts (2005) for a survey of past attempts to address the difficulty – and analogous difficulties with related formulations – along with their own attempt. I address it differently from each of the ways they discuss.
negation is causation-entailing or law-entailing, and which the events in that world do *not* instantiate. Then the resulting disjunctive relation and the negation of DECOY (which the events *do* instantiate) are non-causation-entailing and non-law-entailing relations instantiated by the events in that world, which will jointly settle the causal facts that obtain in the world. And it seems fairly clear that for any world there will be such instantiated relations that are neither causation-entailing nor law-entailing and which trivially suffice to settle the causal and nomic facts.

But we can accept the suggested definition and skirt the problem, I think, if we stick closer to Lewis’s own formulation of the supervenience thesis. Lewis, as is well known, distinguishes between relations which are *perfectly natural* and those which aren’t, between ones that “carve nature at its joints” and ones that don’t. The idea is that the world comes ready-made with internal boundaries, which demarcate distinguished classes of individuals, like the class of electrons, and classes of classes of individuals, like the class of objectively distinguished classes, and so on up the chain of classes. A property is perfectly natural iff necessarily, if it is instantiated, then there is some objectively distinguished class all and only whose members instantiate it. They make for genuine similarity between any pairs (or sequences more generally) that instantiate them. And his global supervenience thesis is *really* a thesis about the supervenience of all properties and relations on *perfectly natural ones*: perfectly natural local intrinsic qualities and spatiotemporal relations (which are themselves

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30 For a comprehensive discussion of *(perfect) naturalness* and the theoretical roles with which it has been associated, see Lewis’s classic (1983b), Sider (2011), and especially Dorr and Hawthorne (Forthcoming). Here I focus on its role in similarity-making. See also §1.8.2 and nt. 63.

31 Two notes: (1) I have characterized the notion of a perfectly natural property in terms of objectively distinguished *classes* rather than directly in terms of the notion of an objectively distinguished *boundary*, since, as van Inwagen (forthcoming) notes, objectively distinguished boundaries can “give rise” to non-natural classes, like the complement of the class of electrons.

Second, I have characterized a notion of perfect naturalness that is not world-relative, and which, furthermore, requires of a perfectly natural property that it *necessarily* carve at the joints. (See the discussion in Dorr and Hawthorne (Forthcoming) of the thesis they call ‘Necessity’.) One could characterize a notion of perfect naturalness that foregoes one of those two constraints.
perfectly natural).

So by adopting an analogous modification to Global Supervenience, we can indeed define ‘causal relation’ and ‘nomic relation’ as I have suggested. Global Supervenience, then, is the following thesis: the distribution of all properties and relations globally supervenes on the distribution of perfectly natural non-causal non-nomic properties and relations over all concreta. This is a non-trivial thesis; or at least it cannot be shown trivial in virtue of including the “tricky disjunctions” in the supervenience base. Those disjunctions are surely not perfectly natural if any property at all fails to be perfectly natural.

2.3.2 Patchwork Entails the Other Humean Theses

2.3.2.1 From Patchwork to Delocalization of Laws

Now we are set to begin the arguments. The argument for Patchwork’s entailment of the Delocalization of Laws will be fairly simple: the guiding idea is that if laws are intrinsic, then there are intrinsic natures which entail propositions inconsistent with one another. But then Patchwork allows us to “patch” together those intrinsic natures, and thus entails that there is a possible world in which a contradiction is true.

Here’s a more careful version. Suppose, for reductio, that possibly there is some sequence of events $E_1$, some proposition $L_1$ and some relation $R$ that entails that $L_1$ is a law, such that $R$ is intrinsic to $E_1$. For example, suppose that in the actual world, the variably polyadic relation, being such that it is a law that all point masses attract with a force proportional to the product of their masses and inversely proportional to the square of the distance between them, is intrinsic to some sequence of actually occurring events.

Now I assume the following: necessarily, for any sequence of events $E$ and proposition $L$, such that a relation which entails that $L$ is a law is intrinsic to $E$, possibly
there is a sequence of events $E_2$ and a proposition $L_2$ which is *inconsistent* with $L$, such that there is some relation which entails that $L_2$ is a law and is intrinsic to $E_2$. My assumption is only *slightly* stronger than the assumption that the laws of nature are contingent. It adds to that a “parity assumption” about the intrinsicality of conflicting laws: necessarily, if one law is intrinsic to some events, then possibly there is a law inconsistent with the first one which is *also* intrinsic to some events.\(^{32}\)

So long as laws are contingent, that surely seems right: if some possible law can “govern intrinsically,” then it ought to be possible for an inconsistent law to “govern intrinsically” as well.\(^{33}\) To continue with my example, if the Law of Universal Gravitation really is intrinsic in the way I have supposed, then it ought to be possible that the variably polyadic relation, *being such that it is a law that all point*
masses attract with a force proportional to the product of their masses and inversely proportional to the cube of the distance between them, is intrinsic to some sequence of events. It would be peculiar, to put it mildly, if only the Law of Universal Gravitation had the special capability of governing intrinsically, and no possible law inconsistent with it could.

Returning to the general point, it follows from my assumption, together with our supposition, that possibly, there is some sequence of events, $E_1$, some proposition $L_1$, and some relation $R$ that entails that $L_1$ is a law, such that $R$ is intrinsic to $E_1$, and possibly there is a sequence of events $E_2$ and a proposition $L_2$ which is inconsistent with $L_1$, such that there is some relation which entails that $L_2$ is a law and is intrinsic to $E_2$. So there are two propositions, $L_1$ and $L_2$, which are inconsistent with one another, and (a) possibly there is some sequence of events, $E_1$, and some relation $R$ that entails that $L_1$ is a law is intrinsic to $E_1$, and (b) possibly there is some sequence of events, $E_2$, and some relation $R$ that entails that $L_2$ is a law is intrinsic to $E_2$.

So then there are two intrinsic natures, $Q_1$ and $Q_2$, each of which entails that some proposition is a law, and those propositions are inconsistent with one another.

Then assume Patchwork for conditional proof. Patchwork allows us to patch together $Q_1$ and $Q_2$ into a single possible world – as long as the provisos are met – and so it seems to entail that there is a possible world in which two inconsistent propositions are both laws, and hence both true. And of course there is no such possible world. So by reductio, we can conclude that our initial supposition is false.

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34 Technically, what follows without any special assumptions about iterated modalities is the proposition expressed by this sentence where the second occurrence of ‘possibly’ is understood to occur within the scope of the first occurrence. But I further assume that whatever is possibly possible is just plain possible (the S4 axiom), and what’s even stronger, that whatever is possibly necessary is just plain necessary (the S5 axiom). So we can go on to infer the claim expressed by the next sentence.

35 This follows assuming (T10) and (T11) (Appendix A).

36 Here I assume that necessarily, any proposition that is a law is true. Cf. van Inwagen (1998).
That is, it’s not possible that there is some sequence of events, \(E_1\), some proposition \(L_1\), and some relation \(R\) that entails that \(L_1\) is a law, such that \(R\) is intrinsic to \(E_1\). But since every relation that is instantiated by something is instantiated by it either intrinsically or extrinsically, it follows that necessarily, for any sequence of events \(E\), and any proposition \(L\), any relation that (a) entails that \(L\) is a law, and (b) is instantiated by \(E\), is extrinsic to \(E\). Then by conditional proof, conclude that Patchwork entails that necessary truth.

The careful reader will note that I have “overshot,” since that necessary truth is stronger than the Delocalization of Laws. And there’s at least one simple reason: my argument had to assume the satisfaction of the “size and shape permitting” proviso at the final step of the argument, and that might not always be satisfied. Whether it is depends of course on the “size and shape” of the two sequences that instantiate intrinsic natures \(Q_1\) and \(Q_2\). To address this, my argument ought to be modified slightly so that it proceeds in two stages: first, qualify the initial supposition (for reductio) so that the proviso can be satisfied, and conclude that no law-entailing relation is ever intrinsic to sequences like those. Second, generalize. Infer from the conclusion of the first stage that a proposition’s being a law is a wholly extrinsic matter, which is to say at least this much: a difference between two sequences with respect to whether some proposition is a law (or some propositions are laws) doesn’t, all by itself, make for an intrinsic difference. Thus, any two possible sequences that are non-nomic duplicates are intrinsic duplicates, period.\(^{37}\)

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\(^{37}\)I am assuming here that the perfectly natural intrinsic non-nomic properties and relations settle all the intrinsic non-nomic properties and relations; this assumption is needed because ‘non-nomic duplication’ is defined in terms of the sharing of perfectly natural properties and relations (see nt. 20).

Note: here, and elsewhere in this chapter, I employ locutions whose intended interpretation is the interpretation a possibilist would give to it. But in each case, there is an actualist-kosher translation that is available, assuming the correctness of the S5 system of modal logic. Here, for example, is a translation of the claim in the text: in any world \(w_1\), for any sequence \(X_1\), necessarily, any sequence \(X_2\) such that for any perfectly natural non-nomic intrinsic property \(P\), \(X_2\) instantiates \(P\) iff in \(w_1\) \(X_1\) instantiates \(P\), is also such that for any intrinsic property \(I\), \(X_2\) instantiates \(I\) iff in \(w_1\) \(X_1\) instantiates \(I\).
From which we can conclude this: necessarily, for any sequence of events \( E \) and any nomic relation \( R \) it instantiates (where the pair \( \{ E, R \} \) is not nomologically innocent), \( E \) has \( R \) extrinsically.\(^{38}\) (For necessarily, for any sequence of events \( E \) and any nomic relation \( R \) it instantiates, if the pair \( \{ E, R \} \) is not nomologically innocent, then \( R \) differs between possible non-nomic duplicates of \( E \); and hence it differs between possible intrinsic duplicates of \( E \); and hence it is extrinsic to \( E \).) As should be apparent, the conclusion just is the Delocalization of Laws. By conditional proof, we can conclude that Patchwork entails the Delocalization of Laws.

2.3.2.2 Reply

I can see only one plausible reply on the Half-Hearted Humean’s behalf: deny that the laws are contingent.\(^{39}\) This is a high price for anyone to pay. But the pricetag is much higher for the Half-Hearted Humean, at least with regard to non-probabilistic laws that relate the properties of different things, or of the same thing at different times. As I already noted in §2.2.1, Patchwork implies that for any such law that is necessary, any property that figures into the law is extrinsic to its bearer. So the Half-Hearted Humean who offers this reply will be committed to the view that properties such as *having a mass of XYZ* and *having a charge of ABC* are extrinsic. That’s not a happy thing to say.\(^{40}\)

\(^{38}\)Of course, a Humean – an adherent of Patchwork – can’t be too liberal about what pairs she holds are nomologically innocent, since in many cases my argument immediately establishes that a certain nomic relation is not intrinsic to a certain sequence. Thankfully for the Humean, the case of a maximal-sized spacetime filled to the brim (see. §2.3.1.1) is immune to such a direct argument, because the “size and shape” proviso cannot be satisfied, and hence my argument falters at the stage at which it employs Patchwork.

\(^{39}\)The Half-Hearted Humean can distinguish between different laws if she wants: some laws, she’ll say, are extrinsic and contingent, other laws are intrinsic and necessary. No laws are both contingent and intrinsic. If that’s what she says, then simply restrict the criticism that follows to whichever laws she claims are intrinsic, and hence necessary.

\(^{40}\)Although, see Field (1980) and a recent defense of a ‘Comparativist’ view about mass in Dasgupta (2013). For some critiques of Field, see Hawthorne (2006c).
And it’s not just the properties that figure directly into the laws. Pretty much all properties would have to be extrinsic to their bearers. Any proposition entailed by a necessary truth is necessary. So the proposition that bread always nourishes would be necessary. But then the property *being bread* and the property *being nourished* couldn’t be intrinsic properties, since we would then have a violation of Patchwork: there would be no possible world in which I ingest bread and fail to be nourished. This is clearly an extremely hefty price.\(^{41}\)

2.3.2.3 From Patchwork to Delocalization of Causation

One way to argue that Patchwork entails the Delocalization of Causation is to argue that the Delocalization of Laws entails the latter, and then to note that as I have just argued, it is entailed by the former. The central substantive assumption that would be needed to argue that the Delocalization of Laws entails the Delocalization of Causation is that *causation* can be correctly analyzed in terms of *being a law*, as Hume (1739) and Lewis (1986a, Introduction; 1973a) both held.\(^{42}\) But I’d prefer not to rely on a particular non-trivial analysis of *causation*, or even on the assumption that *causation* has a non-trivial analysis, since those are contentious assumptions.\(^{43}\) So I will offer two arguments for Patchwork’s entailment of the Delocalization of Causation, neither of which takes a detour through the Delocalization of Laws, and both of which rely only on formal properties of *causation*, rather than a particular analysis. Both arguments exploit the fact that Patchwork guarantees the

\(^{41}\)For a discussion of just how heavy that price is, see §5.1.4.

\(^{42}\)An argument based on such an analysis isn’t as straightforward as it might seem, since it’s not true in general that if a property/relation \(P_1\) can be correctly analyzed in terms of an extrinsic property/relation, then \(P_1\) is extrinsic. (Consider this analysis of *being square*: *being (square and lonely)* or *(square and accompanied).* I will not attempt to fill in the details since I am not going to pursue this argument anyway.

\(^{43}\)While David Armstrong, my arch-Half-Hearted-Humean, indeed holds that *causation* can be analyzed in terms of *being a law* (see passage cited in §2.3), other Half Hearted Humeans disagree: see, e.g., Tooley (1987; 1990). See also Schaffer (2008a; 2008b) for a survey of the relevant views.
possibility of any spatiotemporal arrangement of instances of any intrinsic natures, including ones in which the instances overlap (as long as the proviso about overlap is satisfied).

Argument from Causal Loops: First Version  My first argument, or at least the first version of it, relies on the premise that there cannot be a causal loop: that is, it is not possible for there to be a sequence of events, such that each event causes the next event in the sequence, and some event appears twice in the sequence. I will argue that the conjunction of Patchwork and the denial of the Delocalization of Causation entails that such things are possible. So that conjunction has to go; and so if we keep Patchwork, we have to accept the Delocalization of Causation.

Here’s the argument in greater detail. Assume Patchwork is true. Now, it surely seems possible for an event to cause a duplicate of itself. Just think of an idealized case of falling dominoes. Consider such a possible pair of events, \((E_1, E_2)\), and call the intrinsic nature each one instantiates, ‘Falling Domino’. \(E_1\) caused \(E_2\), so the pair instantiates causation; and now suppose the pair instantiates causation intrinsically. Then \((E_1, E_2)\) has an intrinsic nature – call it ‘Domino Pair’ – which entails the following relation:

\[
\text{being an } x, y \text{ such that } x \text{’s intrinsic nature is Falling Domino and } y \text{’s intrinsic nature is Falling Domino and } x \text{ caused } y
\]

But Patchwork allows us to “take” as many instances of an intrinsic nature as we wish, and “put them” in any spatiotemporal arrangement, as long as all the provisos are met. So it seems we can “take” two instances of Domino Pair and arrange them so that the event that is the effect in the one pair is the very same event as the cause in the other pair. After all, those “two” events have the same intrinsic nature, i.e., Falling Domino. And we need not stop there: we can string along such instances until we have a sequence of events, each of which instantiates Falling Domino and
causes the next member of the sequence, and such that the sequence eventually cycles back on itself.\textsuperscript{44} Putting the conclusion less picturesquely, if Patchwork is true, then there is some possible world in which there is a sequence of events, each of which instantiates \textbf{Falling Domino} and causes the next element of the sequence, and such that some element appears twice in the sequence. But there can’t be any such causal loops. By reductio, we can conclude that the pair \((E_1, E_2)\) instantiates \textbf{causation} extrinsically.

Of course, there was nothing special about the pair \((E_1, E_2)\) beyond their being duplicates of one another; any such pair would do. As a matter of fact, I didn’t really need to start with such a pair. For example, consider the following three possible pairs of (non-duplicate) events: \((E_1, E_2), (E_3, E_4), \text{ and } (E_5, E_6)\), where \(E_1\) caused \(E_2\), \(E_3\) caused \(E_4\), and \(E_5\) caused \(E_6\), and where \(E_2\) and \(E_3\) are duplicates, \(E_4\) and \(E_5\) are duplicates, and \(E_6\) and \(E_1\) are duplicates.

Then assume Patchwork. By an analogous argument (assume \textbf{causation} is intrinsic to all of them, string them along until the sequence cycles, invoke premise that there are no causal loops) I can show that it’s not the case that \textbf{causation} is intrinsic to all three pairs. And there’s nothing at all special about those pairs.

Moreover, we need not confine our attention to causal relations of \textit{pairs} of events. You can take a vast sequence of events, which are perhaps intricately and system-

\textsuperscript{44}Here’s a more formal argument. It follows from Patchwork that if \{\textbf{Domino Pair}\} is a sequence of intrinsic natures, \{3\} is a sequence of positive cardinals, and \(\phi\) is a spatiotemporal arrangement that maps one instance of \textbf{Domino Pair} to the sequence of regions \{\(R_1, R_2\)\}, another instance to the sequence \{\(R_2, R_3\)\}, and a third instance to the sequence \{\(R_3, R_1\)\} (where that arrangement “fits”), and the element in the first instance, which was mapped to \(R_2\), is identical with that element of the second instance which was mapped to \(R_2\), etc., then there is a possible world in which there are exactly three instances of \textbf{Domino Pair} in that arrangement (provided that (1) if there were such instances in that arrangement, then it would be the case that for any \(x\) and \(y\), if \(x\) is a part of (an element of) one of the instances and \(y\) is a part of (an element of) another of the instances and \(x = y\), then for any intrinsic natures \(Q_x\) and \(Q_y\), \(x\) has \(Q_x\) and \(y\) has \(Q_y\) only if \(Q_x\) and \(Q_y\) are compatible, and (2) size and shape of spacetime permits). Let ‘\(\phi\)’ name the arrangement described. It seems that the antecedent is true and the provisos are met, so it follows that there is a possible world in which there are exactly three instances of \textbf{Domino Pair} in \(\phi\). From which it follows that there is a possible world in which an event \(E\) that exactly occupies \(R_1\) caused an event that exactly occupies \(R_2\) which caused an event that exactly occupies \(R_3\), which in turn caused \(E\).
atically interconnected. So long as two of them are duplicates, one of which causes the other, and the whole lot can be duplicated and arranged in spacetime so that the the duplicating events overlap in such a way as to cycle, an analogous argument to the one I just gave will show that the vast sequence of events will have certain causal relations extrinsically. And again, it’s not really necessary to “start” with two duplicates related by causation.

So this argument immediately establishes that certain sequences instantiate some causal relations extrinsically (if at all). But there are certain sequence/relation pairs such that my argument cannot immediately establish that the relation is instantiated by the sequence extrinsically (if at all), at the very least because of the size-and-shape proviso in Patchwork. However, as with the argument from Patchwork to the Delocalization of Laws, the second stage is to generalize. Infer from the conclusion of the first stage that the instantiation of any causal relation is a wholly extrinsic matter, which is to say at least this much: a difference between two sequences with respect to whether there is any causation going on between elements of the sequence (or between which elements of the sequence) doesn’t, all by itself, make for an intrinsic difference. Thus, any two possible sequences that are non-causal duplicates are intrinsic duplicates period.45

From which we can conclude this: necessarily, for any sequence of events $E$, and any causal relation $CS$ it instantiates (where the pair $\{E, CS\}$ is not causally innocent), $E$ has $CS$ extrinsically. (For necessarily, for any sequence of events $E$, and any causal relation $CS$ it instantiates, if the pair $\{E, CS\}$ is not causally innocent, then $CS$ differs between possible non-causal duplicates of $E$; and hence it differs between possible intrinsic duplicates of $E$; and hence it is extrinsic to $E$.) As should

45As in nt. 37, I am assuming that the perfectly natural intrinsic non-causal properties and relations settle all the intrinsic non-causal properties and relations; this assumption is needed because ‘non-causal duplication’ is defined in terms of the sharing of perfectly natural properties and relations (see nt. 66).
be apparent, the conclusion just is the Delocalization of Causation. By conditional proof, we can conclude that Patchwork entails the Delocalization of Causation.

The only premise of my argument, aside from the generalization at the second stage, is that causal loops are impossible. I assume that causal loops are impossible because I think they are conceptually impossible. But I recognize that not everyone will agree with me on the latter point.46 Perhaps some of those who disagree have been persuaded that such things are conceptually possible by reading apparently coherent science fiction stories, such as Robert Heinlein’s “All You Zombies” or Robert Silverberg’s “Absolutely Inflexible,” which seem to involve just such things.47 I am persuaded by these stories of the conceptual possibility of causal loops to about the same extent that I am persuaded by Jorge Luis Borges’ “Aleph” of the conceptual possibility of proper parthood loops (see Sanford 1993); which is to say, not at all.48 Whatever appearance of conceptual possibility there is in such cases seems to derive

46See, e.g., Lewis (1976) and Hanley (2004).

47Others who disagree have perhaps been persuaded that they are physically possible, and a fortiori conceptually possible, by inferring that from Gödel’s (1949) famous solution to Einstein’s field equations. His solution contains closed time-like curves (as a matter of fact, in his solution, there is a closed time-like curve on which every point in spacetime lies), where a time-like curve is a trajectory in spacetime such that the speed along the trajectory is always less than the speed of light.

But there are two reasons to question this inference:

1. As Tim Maudlin (2012) has noted, the solution might not represent a metaphysically possible scenario; the fact that the scenario is not ruled out by Einstein’s field equations does not imply that it’s metaphysically possible, any more than the fact that a scenario in which I had a different mother is not ruled out by Einstein’s field equations implies that it’s metaphysically possible. I would the same thing, mutatis mutandis, for conceptual possibility. (And of course if it’s not metaphysically possible, let alone if it’s not conceptually possible, then it’s not physically possible, since it can’t compossible with the laws of nature if it’s metaphysically impossible.)

2. Even if Gödel’s solution represents a genuine possibility, it doesn’t obviously follow that it’s possible for there to be causal loops, since the solution is silent on which events instantiate causation: it merely tells us about the geometry of spacetime and certain trajectories therein.

48Here is one of the things Borges wrote: “I saw the Aleph from every point and angle, and in the Aleph I saw the earth and in the earth the Aleph and in the Aleph the earth”. This too is, in some sense, apparently coherent, especially if you take frequent breaks when reading it.
from the fact that we don’t grasp the whole situation “all at once”. But that’s just a piece of psychological autobiography. And in any case, others may simply not see any conceptual impossibility in causal loops to begin with. So I will offer a justification for the claim that a certain sort of causal loop is indeed impossible, and then point out that a version of my Argument from Causal Loops relies only on that weaker premise.

**Argument from Causal Loops: Second Version**  It is a conceptual truth, I take it, that causation is irreflexive. Nothing can cause itself. So if it were a conceptual truth that causation is transitive, then it would be a conceptual truth that there are no causal loops. And indeed, some philosophers think it a conceptual truth that causation is transitive. As Ned Hall puts it, “That causation is, necessarily, a transitive relation on events seems to many a bedrock datum, one of the few indisputable a priori insights we have into the workings of the concept” (2004a). But as Hall goes on to say, that position has come under attack from philosophers armed with a variety of counterexamples. Here is such an example (from Hartry Field): John doesn’t like Joe, so he puts a bomb in front of his house (he really doesn’t like him). Joe smells the fuse burning and so runs and defuses it, and so survives. So John’s placing the bomb caused Joe to smell the bomb; and Joe’s smelling of the bomb caused the bomb to be defused; and the bomb’s defusal caused Joe’s survival. But it doesn’t seem like John’s placing the bomb caused Joe’s survival.

There are philosophers who have dug in their heels and insisted that even in such putative counterexamples, transitivity holds; although we would not usually say “John’s placing the bomb caused Joe’s survival,” it is nonetheless strictly speaking

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49See also van Inwagen (1993).

50See also Ehring (1997).

51Cited in, among others, Lewis (2004a).
true. But I think they’re right. But I need not insist on that here. The reason is that my argument only needs the assumption that a certain sort of causal loop is impossible. And that can be justified in turn by the assumption that causation is transitive in certain cases. One can capture such restricted versions of transitivity with any instance of the following schema (where ‘Φ’ is replaced by a predicate that involves no causal vocabulary and is “wholly qualitative”): necessarily, for any events $E_1$, $E_2$, and $E_3$, if $E_1$ caused $E_2$, $E_2$ caused $E_3$, and $Φ(\{E_1, E_2, E_3\})$, then $E_1$ caused $E_3$. And any such instance (as long as what is substituted for ‘Φ’ isn’t trivially satisfied) may of course be consistent with there being counterexamples to the claim that causation is transitive everywhere and always. Moreover, the cases in which transitivity seem to fail are unusual in some way: as a matter of fact, many of them, it not all of them, are unusual in the very same way. Now, I do not claim that I know what to substitute for ‘Φ’. But I do claim that the existence of counterexamples to a fully general claim of transitivity shouldn’t shake our confidence that causation is usually transitive, that transitivity holds in general provided that a highly unusual condition (which is perhaps very difficult to specify) does not obtain. And, moreover, that in many cases we can just see that the condition does not obtain.

To take the simple example with which my argument began, if we know that domino$_1$ fell, causing (duplicate) domino$_2$ to fall in just the same way, which in turn caused (duplicate) domino$_3$ to fall in just the same way, then it seems we can validly infer that domino$_1$’s falling caused domino$_3$’s falling. No failure of transitivity seems in the offing once we fix the intrinsic natures of the events in the sequence in

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52 See Lewis (2004a, §2.3) and Hall (2004a).

53 See Lewis (2004a, §2.3). Here’s how we might characterize the structure of most of the counterexamples: some event threatens to do something, but also does something that contributes to the undoing of that very threat. (It is put roughly this way by Collins et al. (2004b, 40). Thus, the placement of the bomb threatens to kill Joe, but it also alerts Joe to the threat and thus contributes to the undoing of that threat.
that way. But the fact that the transitivity of *causation* holds in any such case, together with the assumption that *causation* is irreflexive, implies that causal loops consisting solely of such falling dominoes are impossible.

And of course, it’s not the case that *causation* is transitive only when it comes to duplicate falling-domino-events. As I’ve suggested, it’s transitive in a large class of cases. And that fact, together with the assumption that *causation* is irreflexive, implies more generally that many sorts of causal loops are impossible. So to anyone who is sceptical of the premise that *every sort* of causal loop is impossible, I can offer a version of the Argument from Causal Loops that relies not on that fully general premise, but only on instances of it. Of course, the relevant instances are the sorts of causal loops which are (a) guaranteed possible by the conjunction of Patchwork and the claim that *causation* (or some causal relations) is intrinsic, and (b) demonstrably impossible, assuming certain true restricted transitivity claims.

Argument from Transitivity Violation  

Alas, almost nothing is uncontroversial in philosophy, and I assume there will be those who not only deny that causal loops are all impossible, but who also deny that causation is irreflexive. For them, I offer

54 If you think that other external conditions need to be satisfied for transitivity to hold, like there being nothing else going on in the vicinity other than falling dominoes, that will present no special difficulty for my argument; after all, Patchwork guarantees the possibility of the causal loop of falling dominoes and nothing else.

55 Where to say that a particular sort of causal loop is impossible is to assert some instance of the following schema: necessarily, there is no sequence of events \( \{E_1, \ldots, E_N\} \), such that (1) each event causes the succeeding event in the sequence, (2) some event appears twice in the sequence, and (3) \( \Phi(\{E_1, \ldots, E_N\}) \). Any such instance could be derived from a restricted claim of transitivity (together with the assumption of irreflexivity) if the fact that \( \{E_1, \ldots, E_N\} \) satisfies the predicate that substitutes for \( \Phi \) implies that any three-membered subsequence of \( \{E_1, \ldots, E_N\} \) satisfies a condition sufficient for transitivity.

56 I should note that this version of the argument requires a bit more generalizing at the second stage of the argument – to cover the cases in which the transitivity of causation fails – but that seems to make the generalizing maneuver no less plausible.

57 Lewis indeed denies it. See his Postscript to (1973a).
another argument, which exploits the point I made in the previous section about a true restricted transitivity claim, and relies neither on the premise that causation is irreflexive nor on the premise that causal loops are impossible. The basic idea of this argument is simple: the conjunction of Patchwork and the assumption that causation is intrinsic entails the possibility of violations of transitivity in the sorts of cases in which causation is necessarily transitive. So Patchwork entails that causation is not intrinsic. Then another application of the “generalizing maneuver” delivers the result that Patchwork entails the Delocalization of Causation.58

The details are as follows: consider again a possible pair of domino-falling-events, \((E_1, E_2)\), where \(E_1\) caused \(E_2\). Again, call the intrinsic nature of each event, ‘Falling Domino’. Now suppose that causation is intrinsic. Then \((E_1, E_2)\) has an intrinsic nature – again, call it ‘Domino Pair’ – which entails the following relation:

being an \(x,y\) such that \(x\)’s intrinsic nature is Falling Domino and \(y\)’s intrinsic nature is Falling Domino and \(x\) caused \(y\)

And it surely seems that there is another possible pair of domino-falling-events, \((E_3, E_4)\), where that pair is a duplicate of \((E_1, E_2)\) but for the fact that it does not instantiate causation (or any causal relation).59 But since (as we have supposed) causation is intrinsic, so is its negation.60 So then \((E_3, E_4)\) has an intrinsic nature - call it ‘Domino Pair\textsubscript{NoCause}’ - which entails the following relation:

being an \(x,y\) such that \(x\)’s intrinsic nature is Falling Domino and \(y\)’s intrinsic nature is Falling Domino and \(x\) does not cause \(y\)

Patchwork would seem to allow us to patch together two instances of Domino Pair

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58Thanks to John Hawthorne for suggesting this alternative argument.

59To put this in terms of the jargon I used to formulate the Delocalization of Causation, my assumption amounts to the claim that the sequence/relation pair \(\{(E_1, E_2)/\text{causation}\}\) is not causally innocent.

60See (T6) in Appendix A.
and one instance of **Domino Pair**\(^{\text{NoCause}}\), in such a way that – assuming a restricted transitivity claim for which I argued in the previous section – there are two events, \(x\) and \(y\), where it’s both the case that \(x\) caused \(y\) and it’s *not the case* that \(x\) caused \(y\).\(^{61}\) And there is obviously no such possible world. So by reductio, we can conclude that Patchwork entails that *causation* is extrinsic.

The second stage of the argument is the same as in the previous argument: infer from the conclusion of the first stage that the instantiation of any causal relation is a *wholly extrinsic matter*, a conclusion which in turn entails the Delocalization of Causation. By conditional proof, we can conclude that Patchwork entails the Delocalization of Causation.

**Objection: Temporal Direction is Intrinsic** The central objection I anticipate is directed at my *Argument from Causal Loops* and rests on two assumptions:

1. **Temporal direction relations are intrinsic.**
   
   So if my match striking came before its lighting, then it is *intrinsic* to the pair (my match striking, the match lighting) that the match striking is *earlier than* the match lighting.

2. **One event can cause another only if the one occurs before the other.**

\(^{61}\)Here’s a more formal argument. It follows from Patchwork that if \{**Domino Pair**, **Domino Pair**\(^{\text{NoCause}}\}\} is a sequence of intrinsic natures, \{2,1\} is a sequence of positive cardinals, and \(\phi\) is a spatiotemporal arrangement that maps one instance of **Domino Pair** to the sequence of regions \{\(R_1, R_2\)\}, another instance to the sequence \{\(R_2, R_3\)\}, an instance of **Domino Pair**\(^{\text{NoCause}}\) to the sequence \{\(R_1, R_3\)\} (where that arrangement “fits”), and the element in the first instance, which was mapped to \(R_2\), is identical with that element of the second instance which was mapped to \(R_2\), etc., then there is a possible world in which there are exactly two instances of **Domino Pair** and one instance of **Domino Pair**\(^{\text{NoCause}}\) in that arrangement (provided that (1) if there were such instances in that arrangement, then it would be the case that for any \(x\) and \(y\), if \(x\) is a part of (an element of) one of the instances and \(y\) is a part of (an element of) another of the instances and \(x = y\), then for any intrinsic natures \(Q_x\) and \(Q_y\), \(x\) has \(Q_x\) and \(y\) has \(Q_y\) only if \(Q_x\) and \(Q_y\) are compatible, and (2) size and shape of spacetime permits). Let ‘\(\phi\)’ name the arrangement described. It seems that the antecedent is true and the provisos are met, so it follows that there is a possible world in which there are exactly two instances of **Domino Pair** and one instance of **Domino Pair**\(^{\text{NoCause}}\) in \(\phi\). From which it follows that there is a possible world in which an event \(x\) that exactly occupies \(R_1\) caused an event \(y\) that exactly occupies \(R_2\) which caused an event \(z\) that exactly occupies \(R_3\) – and, I am assuming, the triple \{\(x, y, z\)\} satisfies a condition sufficient for causal transitivity, so \(x\) caused \(z\) – but where \(x\) did *not* cause \(z\). Impossible!
Thus, backward and simultaneous causation are both impossible.

If both of these assumptions are true, then none of the problematic situations which I claimed are guaranteed possible are really guaranteed possible. For instance, consider the simple example involving the intrinsic nature **Domino Pair**. That intrinsic nature entails the relation:

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being an \( x, y \) such that \( x \)'s intrinsic nature is Falling Domino
and \( y \)'s intrinsic nature is Falling Domino and \( x \) caused \( y \)
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Then assumption (2) implies that it also entails the relation:

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being an \( x, y \) such that \( x \) is earlier than \( y \)
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But then since that relation is intrinsic (per assumption (1)), there is no spatiotemporal arrangement of three instances of **Domino Pair** that satisfies the description I gave in my argument (in §2.3.2.3) and which fits. Remember, the spatiotemporal arrangement I considered assigns one instance of the intrinsic nature to \{\( R_1, R_2 \)\}, another to \{\( R_2, R_3 \)\}, and a third one to \{\( R_3, R_1 \)\}.\(^{62}\) That’s how we get a causal loop. But then it doesn’t fit **Domino Pair**, an intrinsic nature every one of whose instances instantiates the **earlier than** relation. In order to fit, it would have to be the case that \( R_1 \) is earlier than \( R_2 \), and \( R_2 \) is earlier than \( R_3 \), and \( R_3 \) is earlier than \( R_1 \). And there is no such set of spacetime regions. (The objection assumes that there can’t be “earlier-than loops”.)

Reply: Before I get to my main reply, I will note two things. First, the objection is only directed at my **Argument from Causal Loops**; even if its two assumptions are true, no part of my **Argument from Transitivity Violation** is affected. That’s not a reply to the objection, of course, as much as a reminder that even if my reply is unsuccessful, a Half-Hearted Humean is not out of the woods. Second, the assumptions upon which the objection rests are hefty and far from obvious. Perhaps

\(^{62}\)See nt. 44.
(2) is a natural companion to the assumption (of my argument) that causal loops are impossible, in that they both reflect a conservative view about when causation can be instanced. But (1) involves a hefty add-on, and one that seems very unHumean at that. Of course, my argument is directed against a Half-Hearted Humean, and she might be very faint-hearted about her Humeanism. But it is still noteworthy that she has to take on a seemingly independent hefty commitment.

Now for my main reply: she can't take on that hefty commitment, not so long as she is committed to Patchwork. The reason is that a very natural companion to Patchwork – one which I don’t think any adherent of Patchwork could reasonably deny – makes precisely the same sort of trouble for the view that temporal direction relations are intrinsic as Patchwork makes for the view that causal relations are intrinsic. In essence, the objection has merely shifted the problem from one allegedly intrinsic relation to another.

The natural extension of Patchwork I have in mind, which we can call ‘Patchwork*’, is something of an abstraction from Patchwork. Patchwork* doesn’t guarantee the possibility of spatiotemporal arrangements at all, or at least not directly. Rather, it guarantees the possibility of any mereological arrangement of instances of any intrinsic natures, where a mereological arrangement is a specification of which objects overlap (in the mereological sense of ‘overlap’) which others, and on what parts; such an arrangement remains silent on the spatiotemporal locations of objects. Of course, an analogous proviso to the one in Patchwork applies here as well: the mereological arrangement can specify overlap only if the overlapping intrinsic natures ‘say the same thing’ about the character of any part their instances share. It couldn’t

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63 Thanks to an anonymous referee for *Oxford Studies in Metaphysics* here.

64 Note that if an adherent of Patchwork accepts (2) but denies (1), then there is yet a third - and even quicker - argument that she is committed to the Delocalization of Causation. If (1) is false, then Patchwork guarantees the possibility of, for example, two instances of Domino Pair that are temporal inverts of one another; and that’s clearly impossible if (2) is true and no pair can instantiate both the *earlier than* and *later than* relations.
very well be the case that you and I overlap on my head and your arm.

Now, it’s a fairly straightforward matter to show that Patchwork* entails that temporal direction is not intrinsic. All we need is the possibility of a pair of duplicate events - like two beats of a metronome - one of which occurred before the other. (Our falling dominoes would do, but I’ll leave them aside so that issues involving causation don’t create confusion.) Let us call each beat’s intrinsic nature “Metro Beat,” and the pair’s “Beat Pair”. Suppose temporal direction is intrinsic; then Beat Pair entails the following relation:

being an \( x, y \) such that \( x \)’s intrinsic nature is Metro Beat and \( y \)’s intrinsic nature is Metro Beat and \( x \) is earlier than \( y \)

But then there are two arguments – perfectly analogous to the Argument from Causal Loops and the Argument from Transitivity Violation – which show that Patchwork* entails the possibility of an impossible situation. (And remember, the objection requires the assumption that there can’t be “earlier than” loops; and so I can safely assume that as well in replying.) By reductio, conclude that temporal direction is not intrinsic.

(Although it is not essential to make the point here, I will note that this conclusion can be extended in a way that is analogous to the Delocalization of Causation, i.e. that temporal direction does not make an intrinsic difference, and hence any relation that entails a temporal direction is extrinsic to a wide class of sequences. Let’s say that any relation,

\[
\text{being an } x_1,\ldots,x_n \text{ such that } \Phi(x_1,\ldots,x_n),
\]

which either entails

\[
\text{being an } x_1,\ldots,x_n \text{ such that for some } x_i \text{ and } x_j \ (i < j) \ x_i \text{ is earlier than } x_j
\]

or entails
being an $x_1,\ldots,x_n$ such that for some $x_i$ and $x_j\ (i < j)$ $x_j$ is earlier than $x_i$

is a *temporal-direction relation*. Then say that $x$ is a *non-temporal duplicate of y* iff for any intrinsic non-temporal-direction relation $R$, $x$ has $R$ iff $y$ has $R$.

Then say that a sequence/relation pair is “temporally innocent” iff necessarily any non-temporal duplicate of that sequence instantiates that relation. Then the arguments I have just given can be taken to establish this:

**Delocalization of Temporal Direction**: Necessarily, for any sequence of events $E$, and any temporal-direction relation $T$ it instantiates (where the pair $\{E, T\}$ is not temporally innocent), $E$ has $CS$ extrinsically.

I suppose a Half-Heared Humean might endorse Patchwork but not Patchwork*.

That would leave her in an unenviable position, and perhaps an unstable one as

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65 Thus, while the earlier than and later than relations are both temporal-direction relations, their disjunction is *not*. Note the contrast with how I defined causal relations. See nt. 22.

66 Again, as in nt. 20, we actually need to be a bit more liberal about temporal duplication. So officially, $x$ is a non-temporal duplicate of $y$ iff for any intrinsic perfectly natural non-temporal-direction relation $R$, $x$ has $R$ iff $y$ has $R$.

67 One might wonder about the following: as I noted in nt. 65, my definition of ‘temporal-direction relation’ is not perfectly analogous to my definition of ‘causal relation’. Consequently, the Delocalization of Temporal Direction is weaker than the Delocalization of Causation, in that the latter says (roughly) that *whether causation is going on at all* between some things is an extrinsic matter, while the former says (roughly) that *which* things come (temporally) before other things is an extrinsic matter, but not *whether* some of the things come (temporally) before other things. Why the difference in the conclusion if the arguments are so similar?

Well, it’s because it just doesn’t seem plausible – on any account of causation – that while it is an intrinsic matter whether causation is going on at all between some things, it is an extrinsic matter which direction the causal arrow is pointing. One can’t factor out the direction of causation like that, if causation is indeed intrinsic. So I assume that if being an $x_1,\ldots,x_n$ such that for some $x_i$ and $x_j\ (i < j)$ $x_i$ caused $x_j$ is intrinsic, then both being an $x_1,\ldots,x_n$ such that for some $x_i$ and $x_j\ (i < j)$ $x_i$ caused $x_j$ and being an $x_1,\ldots,x_n$ such that for some $x_i$ and $x_j\ (i < j)$ $x_j$ caused $x_i$ are intrinsic; or equivalently, that if the latter are extrinsic, as my argument establishes, then so is the former.

Not so when it comes to temporal-direction. It seems quite plausible indeed that while it is an intrinsic matter whether some things are temporally ordered at all, it is an extrinsic matter which direction the temporal arrow is pointing. And so I can’t plausibly go on to infer from the fact that being an $x_1,\ldots,x_n$ such that for some $x_i$ and $x_j\ (i < j)$ $x_i$ is earlier than $x_j$ and being an $x_1,\ldots,x_n$ such that for some $x_i$ and $x_j\ (i < j)$ $x_j$ is earlier than $x_i$ are extrinsic – which is the conclusion of argument – that the relation being an $x_1,\ldots,x_n$ such that for some $x_i$ and $x_j\ x_i$ is earlier than $x_j$ is extrinsic.
well. Patchwork* seems to be nothing but a more abstract version of Patchwork, and the central argument for Patchwork - that any violation of it would constitute an objectionably mysterious necessary connection - seems equally an argument for Patchwork*.

2.3.2.4 From Patchwork to Joint Delocalization

That concludes my argument for the claim that Patchwork entails both Delocalization theses. I’d like to argue straightaway that Patchwork entails Global Supervenience by arguing that the conjunction of the Delocalization theses entails Global Supervenience. And I could so if those theses didn’t make an exception for “nomologically/causally innocent pairs”. But because they do make such an exception, matters aren’t as straightforward. (I’ll presently explain why they make matters less straightforward.) Instead, I have to first argue that Patchwork entails another thesis which is, at least on the face of it, slightly stronger than the conjunction of the two Delocalization theses, and which does straightforwardly entail Global Supervenience.

In the course of arguing for the Delocalization of Laws, I arrived at the (interim) conclusion that,

(1) A difference between two sequences with respect to whether some proposition is a law (or some propositions are laws) doesn’t, all by itself, make for an intrinsic difference. So any two possible sequences that are non-nomic duplicates are intrinsic duplicates, period.

And in the course of both arguments for the Delocalization of Causation, I arrived at the (interim) conclusion that,

(2) A difference between two sequences with respect to whether there is any causation going on between elements of the sequence (or between which elements of the sequence) doesn’t, all by itself, make for an intrinsic difference. So any two possible sequences that are non-causal duplicates are intrinsic duplicates, period.

But what I need in order to argue for Global Supervenience is this thesis:
Joint Delocalization: A difference between two sequences with respect to both whether some proposition is a law (or some propositions are laws) and whether there is any causation going on between elements of the sequence (or between which elements of the sequence) doesn’t, all by itself, make for an intrinsic difference. So any two possible sequences that are non-causal, non-nomic duplicates are intrinsic duplicates, period.⁶⁸

And Joint Delocalization doesn’t straightforwardly follow from the conjunction of (1) and (2): perhaps a departure in just the nomic facts makes no intrinsic difference, and a departure in just the causal facts makes no intrinsic difference, but a departure in both respects does make for an intrinsic difference. Call this suggestion ‘Hairsplit’ (not to be tendentious). Now, I’m not sure Hairsplit is a genuine epistemic possibility; and I am unaware of any account of causation and laws which would have it as a result. But so as not to leave room for such accounts, I will show that the Argument from Causal Loops can be extended to deliver the result that Patchwork entails Joint Delocalization. (Note that if the Delocalization theses didn’t make an exception for “nomologically/causally innocent pairs,” then they would imply that all causal and all nomic properties are, without exception, extrinsic; which would then imply that all possible non-causal, non-nomic duplicates are intrinsic duplicates, since they share all intrinsic properties and relations.⁶⁹)

Assume Patchwork is true. Now, consider again, if you are not too tired of them, a possible pair of duplicate domino falling events, (E₁, E₂), which are such that E₁ caused E₂ and the Law of Universal Gravitation is a law. Call its intrinsic nature ‘Domino Pair+Gravity’. Now, according to Hairsplit, the relation,

being an $x,y$ such that $x$ caused $y$ or the Law of Universal Gravitation is a law,

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⁶⁸Where $x$ is a non-causal, non-nomic duplicate of $y$ iff for any intrinsic perfectly natural non-causal, non-nomic relation $R$, $x$ has $R$ iff $y$ has $R$.

⁶⁹I am assuming that the perfectly natural (non-causal, non-nomic) properties and relations settle all the less-than-perfectly natural (non-causal, non-nomic) ones.
is intrinsic to \((E_1, E_2)\). After all, any pair that lacked that relation would fail to be an intrinsic duplicate of \((E_1, E_2)\). So that relation is entailed by \textit{Domino Pair}_+ \textit{Gravity}.

And there is, presumably, another possible pair of duplicate domino falling events, \((E_3, E_4)\), which are such that \(E_3\) caused \(E_4\) and the Law of Universal Schmavitation is a law. (Where the Law of Universal Schmavitation is some proposition inconsistent with the Law of Universal Gravitation.) Call its intrinsic nature \(\textit{Domino Pair}_+ \textit{Schmavity}\). Then, according to Hairsplit, the relation,

\[
\text{being an } x,y \text{ such that } x \text{ caused } y \text{ or the Law of Universal Schmavitation is a law,}
\]

is intrinsic to \((E_3, E_4)\). After all, any pair that lacked that relation would fail to be an intrinsic duplicate of \((E_3, E_4)\). So that relation is entailed by \textit{Domino Pair}_+ \textit{Schmavity}.

Now, Patchwork guarantees that it is possible that there are two event loops, one of which is “constructed” solely from instances of \textit{Domino Pair}_+ \textit{Gravity} and the other of which is “constructed” solely from instances of \textit{Domino Pair}_+ \textit{Schmavity}. But that’s not in fact possible, since it would involve \textit{either} an impossible sort of causal loop or the truth of two inconsistent propositions.\(^70\) So Hairsplit is false. By conditional proof, conclude that Patchwork entails that Hairsplit is false. And since Patchwork entails (1) and (2), it entails Joint Delocalization.

\textbf{2.3.2.5 From Delocalization to Global Supervenience}

Now I can move to Global Supervenience, the final thesis in the Wholehearted Humean’s package. There are several extant arguments for Global Supervenience; none of them seems compelling to me.\(^71\) But granting the core Humean idea that there

\(^70\)One could also offer an argument analogous to the \textit{Argument from Transitivity Violation}.

\(^71\)See Schaffer (2008a) for a survey of the arguments; he and I differ, it seems, with respect to the force of his so-called arguments from methodology and science.
are no absolutely necessary connections between distinct things, there is indeed a refreshing and compelling argument for Global Supervenience. Its first premise is that Patchwork entails Joint Delocalization. Its second premise is that Joint Delocalization in turn entails Global Supervenience. As is hopefully clear, I have argued for the first premise in §2.3.2.4; now I will argue for the second premise.

The Argument The argument is quite simple. Its only substantive assumption is this:

**Intrinsic Settles All**: Any two possible sequences of concreta which are intrinsic duplicates, and such that each one exhausts the concreta — that is, each sequence instantiates the relation being all the concreta there are — instantiate all the same qualitative properties/relations, period.

Think of a simple case: I tell you that in \( W_1 \) there is a monkey, and nothing else concrete (other than its parts); and in \( W_2 \) there is a monkey, and nothing else concrete (other than its parts); and I further tell you that the monkeys are intrinsic duplicates. Isn’t it obvious that the monkeys don’t differ at all, except perhaps in a non-qualitative way? To use an initial and intuitive characterization of intrinsicality as a guide, if you know how a certain monkey is in itself, and you know that it is not related to any other mereologically disjoint concrete object (since you know there is no other), don’t you know everything you need to know to determine the properties it has extrinsically, i.e. the properties it has in virtue of the way it is (intrinsically) and the relations it stands or fails to stand in to other things? It would certainly seem so. Now extend the thought to multi-element sequences of concreta: it still seems just as obviously true.

Now assume Joint Delocalization for conditional proof. Then any two possible sequences of concreta that are non-causal, non-nomic duplicates are intrinsic duplicates, period. But then, assuming Intrinsic Settles All, any two possible sequences of concreta that are non-causal, non-nomic duplicates, and such that each one exhausts
the concreta, instantiate all the same qualitative properties/relations, period. And that implies Global Supervenience. Thus, Joint Delocalization entails Global Supervenience. And as I argued in §2.3.2.4, Patchwork entails Joint Delocalization. So Patchwork entails Global Supervenience.

The final turn of the screw is to note that it is extremely unattractive, if not demonstrably inconsistent, to hold Global Supervenience together with a governing conception of either causation or lawhood. If causal facts or laws really do govern or constrain the particular matters of fact, then why couldn’t the particular matters of fact underdetermine the causal or nomic facts? Why couldn’t different causal or nomic facts underlie the same patterns in the phenomena? Those questions are especially pressing given the pairs of apparently coherent scenarios, developed by Tooley (1987), Carroll (1994), and others, which exemplify just that sort of underdetermination. Someone with a Humean account of laws and causation can, in a principled way, drive a wedge between appearance and reality. They have an explanation of the fact, if it is a fact, that those scenarios are not both possible. But, absent such an account, it would seem that no such explanation could be given. Global Supervenience would be an inexplicable constriction of what appears to be modal space.

The upshot then, assuming my arguments are successful, is that we face a stark choice: either Patchwork is false and there are absolutely necessary connections between distinct existents or it really is “just one damn thing after another.” In the next two chapters, I will explain why both choices are problematic.

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72 See Appendix C for the proof.

73 For more on a governing conception of lawhood and the contrast with a Humean view, see Beebee (2000) and Sider (2011, Chapter 12).

74 They do owe an explanation of why we think those scenarios are both coherent. See Collins et al. (2004a, §1.5).
In the previous chapter, I argued that Patchwork is an extremely powerful principle. This makes urgent the natural follow-up question: why believe Patchwork? If, as I’ve argued, anyone who endorses Patchwork is committed to a host of philosophical claims, many of which are less than obvious and some of which are counterintuitive, then why should one endorse it in the first place?

I will consider several answers to this question, each in some detail, but one I will not dwell on very much is that Patchwork is, as philosophers might say, “intuitively obvious”. It might well be that for some people, Patchwork just strikes them as obviously true. And they might not have any further reason - at least no further reason that they could articulate - to believe that Patchwork is true. (Perhaps this goes some of the way toward explaining why defenses are much rarer than deployments when it comes to Patchwork. Fraser MacBride notes the “curious fact that the proponents of the contemporary Humean programme – Lewis included – having abandoned the empiricist theory of thought that underwrites Hume’s rejection of necessary connections provide precious little by way of motivation for the view.” (2005, 127)) And such people might well be justified in believing Patchwork, even absent such a further reason. I henceforth ignore the answer not because no one will give it and not because I hold someone who offers it (in response to “Why do you believe Patchwork?”) in some sort of epistemic contempt, but because there isn’t much one can say about it, and a fortiori, there isn’t much I can say about it.¹

¹Even in the event that the respondent says something more specific – like, “It’s intuitively
3.1 The Imaginability Argument

3.1.1 The Argument

Perhaps the best place to start looking for a defense of a Humean Patchwork principle is in the work of Hume. Indeed, although Hume never spells out such a defense, it appears that he has the necessary pieces from which he could construct one. The first piece is a conceivability-possibility link – the idea that conceivability implies (or, more weakly, is evidence for) possibility – which is likely familiar to us from Descartes’ *Meditations*, and which has been the subject of much recent discussion in modal epistemology. Hume has his own conceivability-possibility link, which he puts as follows:

‘Tis an established maxim in metaphysics, *That whatever the mind clearly conceives includes the idea of possible existence*, or in other words, *that nothing we imagine is absolutely impossible*. (1739, 32)

As Gendler and Hawthorne (2002) note, the two statements of the maxim flanking the phrase “or in other words” seem to be inequivalent, and twice over. The first statement speaks of conceiving and the second of imagining; and the first seems only to imply that whatever is conceived *seems* possible, while the second implies that whatever is imagined *is* possible. I will not make a serious attempt to reconcile them:

-- there still isn’t much I can say. The only thing I could say is, “It sure doesn’t seem so to me, at least not as I’ve introduced the central terms in my statement of Patchwork.” See Wilson (2010) for discussion of the claim that Patchwork is analytic.

2See Gendler and Hawthorne (2002).

3This is his most explicit statement about it, but it is far from being the only place where he employs something like it. Lightner (1997) counts no fewer than twenty four places in Hume’s oeuvre at which he employs something like this maxim. See also Gendler and Hawthorne (2002, 21 ff.).

4As Yablo (1993) colorfully says, “As often when Hume takes himself to be saying the same thing twice, he seems here to be saying two quite different things,” and then points in a footnote to Hume’s two inequivalent definitions of *causation*, advanced in his *Enquiry Concerning Human Understanding*, about which Hume makes the claim that one is just the other in other words.
since the second is much clearer than the first, and also more useful for constructing a defense of Patchwork, I will simply assume that Hume is, in his second statement, making clear what he meant by his somewhat imprecise first statement. So we can put Hume’s claim this way: For any proposition \( p \), if someone imagines \( p \), then \( p \) is possible.\(^5\) So if I imagine that there is intelligent life on other planets, then it is possible that there is intelligent life on other planets. If you imagine that the Cubs won a World Series championship after the First World War, then it is possible for the Cubs to win a World Series championship after the First World War.

Now, although Hume does not speak of what could be imagined, but rather what is imagined, I assume he would endorse the stronger principle that mere imaginability suffices for possibility. If you or I, or anyone for that matter, could imagine that there is intelligent life on other planets, then, on Hume’s view, that is genuinely possible. More exactly still, if it is imaginable (even if not by anyone actual) that there is intelligent life on other planets, then it is genuinely possible that there is. That is,

**IM-PO:** For any proposition \( p \), if \( p \) can be imagined, then \( p \) is possible

IM-PO provides a imaginability-possibility link. All by itself, this principle is not an argument for Patchwork, of course. What is needed in addition are principles that (jointly) imply that any situation guaranteed possible by Patchwork can be imagined; that is, what is needed are principles about what is imaginable in the first place – imaginability principles, for short. In order to find the right imaginability principles, notice this: Patchwork says that given certain “input” possibilities, more will be “output” by recombination. So suppose that any of those “input” possibilities can be imagined: for example, suppose that if a human torso is possible, then it’s

5Note, Hume is not merely claiming that imagining a proposition is good evidence that the proposition is possible; he is claiming that it suffices for its possibility. Yablo (1993) says this is implausibly strong, and so proposes “to (mis)interpret Hume as claiming only that the conceivable is ordinarily possible and that conceivability is evidence of possibility.” I propose instead to interpret Hume correctly.
imaginable, and if a horse head is possible, then it too is imaginable. And suppose
further that an analogue of recombination is true with regard to imaginings. To
continue with our example, suppose that if a human torso is imaginable and a horse
head is imaginable, then a horse head sitting on top of a human torso is imaginable;
which seems to imply in turn that it can be imagined that there is a horse head
sitting on top of a human torso. Then by IM-PO we could conclude that it’s possible
that there is a horse head sitting on top of a human torso. Presto! The “input” was
just that a horse head is possible and a human torso is possible, and the “output” was
the possibility of them patched together. If this line of thought can be generalized
and made precise, then we would have a defense of Patchwork.

Before I go on to do so, let me make two preliminary comments. First, the
attentive reader might have noticed a subtle shift in the last few paragraphs from
the notion of imagining p, which appears in IM-PO, to the notion of imagining x,
where ‘x’ is a phrase that denotes something other than a proposition: in the previous
paragraph, for example, I spoke of imagining a horse head, and a horse head is no
proposition. (Yablo (1993) helpfully distinguishes between these two notions, calling
the former ‘propositional imagining’ and the latter ‘objectual imagining’.) Now,
it is perhaps more natural to illustrate the central idea behind the imaginability
principles using the notion of objectual imagining, as indeed I just did. But in order
to present a valid argument, I will need to consistently employ locutions appropriate
for propositional imagining. Second, I will provide an argument for a pared-down
Patchwork principle: I will concentrate on the case of just two intrinsic natures, and
I will not worry about the “and nothing else except...” clause. This too is for the
sake of simplicity, and I trust it will be clear that it could be extended to a version
closer to the full-blown Patchwork.

With that out of the way, we can return to the task of generalizing. The first
imaginability principle we need is a possibility-imaginability link, and (whose un-
bound portion) is the converse of (the unbound portion of) IM-PO:

\[ \text{PO-IM: For any proposition } p, \text{ if } p \text{ is possible, then } p \text{ can be imagined} \]

Hume might have held PO-IM; whether he did is the subject of some scholarly controversy.\(^6\) But he certainly seems to have employed such a principle at least once, in the continuation of the remark I cited above. He went on to say,

> We can form no idea of a mountain without a valley, and therefore regard it as impossible (1739, 32)

Assuming he considers ‘form an idea’ to be synonymous with ‘imagine’ (and ‘conceive’), then he is inferring – or at least describing a propensity to infer – the impossibility of \( p \) from its unimaginability.\(^7\) Equivalently, he assumes that one can infer the imaginability of \( p \) from its possibility. In any case, whether he endorsed it or not, we can at least entertain it for the sake of mounting a defense of Patchwork.

Importantly for our purposes, since every intrinsic nature is possibly instantiated, the following is entailed by PO-IM:

\[ \text{PO-IM}_{\text{IntrinsicNature}}: \text{ For any intrinsic nature } Q, \text{ it can be imagined that there is something that has } Q \]

The second imaginability principle we need stands to imagination as Patchwork stands to possibility. In other words, it guarantees recombinations of imaginings rather than recombinations of possibilities. (Although as I’ve indicated, it’ll be a pared-down version.) The principle can be put like this:

\[ \text{Patchwork}_{\text{IM}}: \text{ For any intrinsic natures } Q_1 \text{ and } Q_2, \text{ if it is imaginable that there is something that has intrinsic nature } Q_1 \text{ and it is imaginable that there is something that has intrinsic nature } Q_2, \text{ then for any spatiotemporal arrangement of an instance of } Q_1 \text{ and an instance of } Q_2, \text{ it is imaginable that there are two things, one that has intrinsic nature } Q_1 \text{ and one that has intrinsic nature } Q_2, \text{ in that very spatiotemporal arrangement} \]

\(^6\)See Lightner (1997).

\(^7\)More exactly, he is licensing any instance of such an inference.
Hume, again, makes some remarks that suggest some such principle, and even cites some evidence in its favor:

The same evidence follows us in our second principle, of the liberty of the imagination to transpose and change its ideas. The fables we meet with in poems and romances put this entirely out of question. Nature there is totally confounded, and nothing mentioned but winged horses, fiery dragons, and monstrous giants. (1739, 10)

But we might want more than just some inductive evidence from fables and poems to support PatchworkIM. (To be fair to Hume, he wasn’t discussing anything nearly as specific as PatchworkIM.) I think more support can indeed be provided.

The first point we can make is that if a property P is intrinsic, and it is possible to imagine that there is something that has P, then it is possible to imagine that there is something that has P without imagining that there is anything else. P is intrinsic after all, and so it seems one ought to be able to represent its instantiation (in imagination) without representing the existence of anything at all other than its bearer. More generally, if a property P is intrinsic, and it is possible to imagine that there is something that has P, then it is possible to imagine that there is something that has P irrespective of what other things one is imagining. P is intrinsic after all, and so it seems one ought to be able to represent its instantiation (in imagination) no matter what else one is representing.

The second point we can make is that one’s phenomenal field can (and often does) serve as a representation (in imagination) of spacetime, and the phenomenal locations of images – whether they be visual, auditory, gustatory, etc. – can (and often do) serve as representations (in imagination) of the spatiotemporal locations of whatever is represented by those images.8 If one wants to imagine that there is

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8I do not intend to commit to such things as phenomenal fields, locations therein, and mental images. I hope any apparent quantification over such things can be done away with. I take it that the sentence in the text is intelligible, and it’s not especially my responsibility to make clear how one can make the same point without apparent quantification over undesirables.
a football field and on the fifty-yard line stands Peyton Manning, then we all know how to do that (well, at least those of us who have seen a football field and Peyton Manning). If one wants to imagine the trajectory of a rocket over time, then anyone who has taken a physics course will most likely know how to do so. In each case, we use our phenomenal field (usually just our visual field) to represent space or time or spacetime, and locations in the former to represent locations in the latter.

These two points together support PatchworkIM. After all, any intrinsic natures $Q_1$ and $Q_2$ are intrinsic, so by the first point, one can form an image of (something that has) $Q_1$ ($Q_2$) while forming any other image together with it, including an image of (something that has) $Q_2$ ($Q_1$); and by the second point, these images can not only accompany one another, but for any spatiotemporal relation, they can stand to one another in such a way that they represent something that has $Q_1$ and something that has $Q_2$ standing in that very arrangement.

Now all three needed pieces are in place: PO-IM, PatchworkIM, and IM-PO. The first “takes us” from what’s possible to what’s imaginable; the second “takes us” from what’s imaginable to a recombination thereof; and the third “takes us” from that recombination back to what’s possible. Those three principles entail this pared-down version of Patchwork:

**PatchworkPared-Down:** For any intrinsic natures $Q_1$ and $Q_2$, and for any spatiotemporal arrangement of an instance of $Q_1$ and an instance of $Q_2$, it is possible that there are two things, one with intrinsic nature $Q_1$ and one with intrinsic nature $Q_2$, in that very spatiotemporal arrangement.

Call the above argument – the argument whose premises are PO-IM, PatchworkIM, and IM-PO, and whose conclusion is PatchworkPared-Down – the ‘IMAGINABILITY ARGUMENT’. It is clearly valid, and as I said, I trust it is clear that an extension of the IMAGINABILITY ARGUMENT can be used to argue for a version closer to the full-blown Patchwork. (Hint: the only premise in the argument that needs to be extended is PatchworkIM, and it should look very much like Patchwork, i.e. it should
work in non-instantiation along with instantiation, and instantiation no matter how many times over.)

3.1.2 Some Interesting Consequences

Now, before I evaluate the Imaginability Argument, I want to make a couple of observations. First: the Imaginability Argument – if it is sound – provides an interesting reply to a persistent objection to IM-PO (and close cousins). The objection goes like this: in order for IM-PO to be true, then for something to count as an imagining, in the sense relevant to the principle, it must meet a very exacting epistemic standard. Descartes recognized this, of course, which is why he demanded a ‘clear and distinct perception’; Hume too recognized this, as in a more guarded statement of IM-PO he says, “Whatever can be conceived by a clear and distinct idea necessarily implies the possibility of existence.”9 But, continues the objection, it is difficult, if not impossible, for creatures like us to tell, upon introspection, whether a particular episode of imagining meets that standard. (Call this fact, if it is one, the ‘Introspection Problem’.) So, the objection concludes, IM-PO is of little or no epistemic significance, even if it is true.10

But now, notice that it doesn’t seem like the central fact to which the objection calls our attention – the Introspection Problem – is grounds for rejecting any of the premises of the Imaginability Argument, or, for that matter, our epistemic access to those premises. And if the Imaginability Argument is sound and (its premises) epistemically accessible, then IM-PO is of great epistemic significance, since it is an essential piece of a sound and epistemically accessible argument for Patchwork, a principle such that if we know it, we have a good deal of modal knowledge; and if IM-PO is of great epistemic significance, then, of course, the objection’s conclusion

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9 (1739, 43), emphasis mine.

is false. But then the conclusion of the objection simply does not follow from what precedes it. It might well be that IM-PO is hard to make use of – especially for creatures like us – in deciding whether a particular episode of one’s own imagining underwrites the possibility of the imagined state of affairs, but that is consistent with its being epistemically significant, in virtue of its role in a sound argument for a powerful modal principle, a role which appears not to be impugned by the objection under consideration.\textsuperscript{11}

Second: the version of Patchwork that would be the conclusion of a generalized form of the Imaginability Argument would, in some respects, align closely with the final form of Patchwork in §1.7, while in other respects, misalign. For an example of alignment, the conclusion of a generalized form of the Imaginability Argument does not imply Patchwork\textsubscript{De Re} (see §1.2), aligning well with my having dropped the latter early on. It is true that PO-IM and IM-PO are perfectly general, making no distinction between possibilities (and corresponding imaginings) such as nymphs flying over a body of water and nymphs flying over the Black Sea. PO-IM guarantees that if both are possible, both are imaginable, and IM-PO guarantees that if both are imaginable, both are possible. But Patchwork\textsubscript{IM}, the third premise in the Imaginability Argument, is not perfectly general, and with good reason. Suppose that instead of having been formulated in terms of ‘intrinsic natures’, the principle had been formulated instead in terms of ‘essences’.\textsuperscript{12} Then it would not be very plausible. There seem to be limits to the sorts of “de re combinations” one can imagine. I, for instance, have trouble imagining that the Black Sea, that very

\textsuperscript{11}There is a wrinkle here: it might be that the first fact to which the objection calls our attention – that an imagining will have to meet a very exacting epistemic standard to license an inference from imagination to possibility – implies the falsity of the conjunction of the premises of the Imaginability Argument, even without the Introspection Problem. But that it does, as I shall indeed argue, is no trivial matter, and requires the addition of several other premises, premises which are no part of the objection under consideration.

\textsuperscript{12}Where $P$ is an essence $=_{df}$ possibly there is some $x$, such that necessarily, for anything $y$, $y = x$ iff $y$ has $P$. 
sea, is located roughly where the Gulf of Mexico actually is. And I don’t think I’m alone in having that difficulty. (If you don’t think there is such a thing as the Black Sea, I’m sure you can come up with another example that suits your ontology.) And so it is well and good that PatchworkIM does not guarantee that such situations are imaginable. But it would have to in order for the conclusion of a generalized form of the Imaginability Argument to imply PatchworkDe Re.

For an example of misalignment, notice that there seems to be no restriction on the kinds of things the possibility of whose existence or non-existence would be guaranteed by the conclusion of a generalized form of the Imaginability Argument. Suppose, for example, there actually are propositions; then of course there could be propositions; but then the conclusion of a generalized form of the Imaginability Argument would guarantee that there could be people but no propositions. After all, since it is possible that there are propositions, then by PO-IM, it is imaginable that there are. And then by an extended version of PatchworkIM, it would follow that it is imaginable that there are people and no propositions. (How, you ask, can one imagine that there are people but no propositions? Well, if you went along with me in assuming that it is imaginable that there are propositions, then it seems quite plausible that it is imaginable that there are people but no propositions. Here are “instructions” for the one who is capable of imagining that there are propositions: first imagine that there are propositions; then imagine that there are propositions and people; then mentally erase the propositions – it seems that anyone who followed these instructions to the end could reasonably be said to have imagined that there are people but no propositions.\textsuperscript{13} ) And then by IM-PO, it would follow that there could be people but no propositions. But that possibility does not follow from Patchwork, or at least not obviously so. Patchwork is restricted to contingently instantiated intrinsic natures (§1.5), and so it is open to an adherent of Patchwork

\textsuperscript{13}See Rosen (2002).
to say simply that with respect to at least some proposition, its intrinsic nature is necessarily instantiated.

3.1.3 Evaluation of the Argument

Is the Imaginability Argument a good one? No, I don’t think so. It equivocates on the meaning of ‘imagine’. Each premise has some natural interpretation according to which it is defensible, but there is no interpretation of ‘imagine’ which when uniformly employed throughout the argument renders all of its premises defensible.

What does it take to imagine a certain state of affairs? What does one have to do to imagine that there are polar bears on the plains of the Serengeti? At minimum, imagining that there are polar bears on the plains of the Serengeti involves being in a mental state which has propositional content, and in particular, the propositional content that there are polar bears on the plains of the Serengeti. But there are of course other mental states which have that content, like believing that there are polar bears on the plains on the Serengeti and desiring that there be polar bears on the plains of the Serengeti. Something must set imagining apart from believing, desiring, and the rest. What is it? Well, one thing we can point to is that different propositional attitudes confer different dispositions.¹⁴ For example, if I were to believe that there are polar bears on the plains of the Serengeti, even if I were to want to continue believing that proposition come what may, I would still be disposed to cease believing it upon encountering certain evidence. But if I were to imagine that there are polar bears on the plains of the Serengeti, and I would want to continue imagining that proposition come what may, then I would probably not be impeded

¹⁴There might also be normative facts that distinguish between the propositional attitudes: for example, if one’s evidence supports the proposition that there are no polar bears on the plains of the Serengeti, then one ought not believe that there are, but it’s not the case that one ought not imagine that there are. But this difference seems to be explained by the fact that the one is a belief and the other an imagining, rather than constitutive of that fact.
(for very long) by my encounter with that same evidence; I would in fact be disposed to continue imagining that there are polar bears on the plains of the Serengeti even in the face of that evidence. Now, I can’t exactly, or even approximately, list the entire cluster of dispositions conferred by imagining \( p \), but I will assume there is such a cluster, the cluster of imagination\(_p\) dispositions, and that it distinguishes imagining \( p \) from other propositional attitudes toward \( p \).\(^{15}\) Now we might stop there, and turn that into a definition of ‘imagines’:\(^{16}\):

\[
x \text{ imagines}_L p =_{df} x \text{ is in a mental state } S, \text{ such that } S \text{’s content is } p \text{ and } S \text{ confers the cluster of imagination}_p \text{ dispositions}
\]

We might have instead used this as a philosophical definition of ‘supposes’, rather than a stipulative definition of ‘imagine\(_L\)’. And I don’t think we would have been wrong; the minimalist sense of ‘imagine’ we have tried to capture just is the ordinary sense of ‘suppose’.

But that’s not the only thing one can mean by ‘imagine’: in another, fairly natural sense of ‘imagine’ – one that is closer to its Latin root, ‘imaginari’ – in order to imagine that there are polar bears on the plains of the Serengeti, one has to simulate a perceptual experience of polar bears on the plains of the Serengeti. Here is how Thomas Nagel puts the relevant sort of imaginative capacity:

To imagine something perceptually, we put ourselves in a conscious state resembling the state we would be in if we perceived it. (1974)

\(^{15}\)Note two points: first, a cluster of dispositions is a cluster of imagination dispositions relative to a certain proposition (thus the subscript). As far as I have said, a cluster of dispositions might be conferred by a belief whose content is \( q \) and by an imagining whose content is \( p \), where \( p \neq q \). Second (and related), I am not assuming that a cluster of dispositions can do the job of bestowing a particular content on a mental state to begin with – an assumption that characterizes functionalism about the mental – only that of distinguishing between different propositional attitudes toward a given content.

\(^{16}\)Since the notion at play here imposes a low standard, I will use ‘imagines\(_L\)’ (for ‘Low Standards’) to refer to it, and ‘it is imaginable\(_L\) that \( p \)’ to express that it is possible that someone imagines\(_L\) that \( p \).
To make this more precise, we might say this:\(^\text{17}\):

\[ x \text{ imagines}_H p =_{df} x \text{ is in a mental state } S_1, \text{ such that (1) } S_1 \text{’s content is } p \text{ and (2) } S_1 \text{ confers the cluster of imagination}_p \text{ dispositions and (3) possibly there is a mental state } S_2 \text{ which is (a) a state of } perceiving \text{ that there are polar bears on the plains of the Serengeti and (b) “internally indistinguishable” from } S_1.\(^\text{18}\)

Let’s consider these two interpretations in reverse order. If we consistently replace ‘imagine’ with ‘imagine\(_H\)’ (and ‘imaginable’ with ‘imaginable\(_H\)’) in the three premises, then the correct response to the argument seems to be this. IM-PO is extremely plausible; indeed, it is unexceptionable. If one is in a mental state which is such that possibly there is an “internally indistinguishable” mental state that is a state of \textit{perceiving} that there are polar bears on the plains of the Serengeti, then possibly there is a mental state that is a state of \textit{perceiving} that there are polar bears on the plains of the Serengeti. But then possibly there are polar bears on the plains of the Serengeti.

The problem is that the other two premises are not plausible. Consider first the principle PO-IM, which guarantees that if \(p\) is possible, then \(p\) is imaginable\(_H\). This principle is false if the following is true: there is some (possible) property \(P\) whose

\(^{17}\)Meeting this condition is no small feat; it imposes a high standard indeed. So I use ‘imagine\(_H\)’ (‘H’ for ‘High Standard’) to express this notion (and ‘it is imaginable\(_H\) that \(p\)’ to express that it is possible that someone imagines\(_H\) that \(p\)).

\(^{18}\)In this more precise formulation, I have shifted to terminology appropriate for \textit{propositional perception} rather than \textit{objectual perception}; one might perceive a polar bear on the plains of the Serengeti (objectual perception) without perceiving that there is a polar bear on the plains of the Serengeti (propositional perception), say by not being aware that one is on the plains of the Serengeti. (Note: I assume one can, and often does, perceive \textit{that such-and-so}. We express putative instances of propositional perception by saying things like “It looks to be the case that such-and-so”: I take that to be another way of saying that one is having a perceptual experience whose content is the proposition, \textit{that such and so}. Whether one is, in such cases, perceiving that such-and-so rather than hallucinating or under an illusion depends in part on whether such-and-so and whether one is in the right sort of causal relation to the fact that such-and-so. For some skepticism about the claim that experiences have content, see Speaks (2011, 340 ff.).) I do so because I am speaking about propositional imagining, rather than its objectual counterpart. If I had been speaking about objectual imagining, I would have cast the higher standard for ‘imaginable’ in terms of objectual perception.
presence cannot be detected via perception; that is, there is some (possible) property P such that necessarily no one perceives that there is something that has P; or, for short, there is some (possible) property P that cannot be perceived. For since P is possibly instantiated, then possibly there is something x which has P. But it is not imaginable\textsubscript{H} that there is something that has P, because there is no possible state of perceiving that there is something that has P, and a fortiori no state that is “internally indistinguishable” from one.

Now, is there such a property? It’s hard to see why we should think there isn’t. Perception entails causation, so if there could be something with no causal powers, no capacity to cause anything at all, then there could be something unperceived. And while some philosopher have been sympathetic to the idea that nothing can lack causal powers, it is hard to see why we should agree.\textsuperscript{19} (Creatures like us might never have good reason to believe there are such things, and it might not even be possible for creatures like us to have good reason to believe there are such things, but it doesn’t for a moment follow that there couldn’t be such things.) But if there could be something unperceived, then the property being unperceived is a possible property that cannot be perceived.\textsuperscript{20}

Indeed, if there is any possible non-trivial property, like being a number or being a proposition, that is essentially causally idle – that essentially fails to confer any causal powers – then there is a possible property that cannot be perceived.\textsuperscript{21}

\textsuperscript{19}See The Sophist 246E-248A.

\textsuperscript{20}Here I assume that necessarily, no one perceives that there exists something unperceived; there could be a being – God, say – who knows that there exists something unperceived, but that’s quite different from perceiving it.

It should be evident that I have tollensed where Bishop Berkeley ponensed. Berkeley assumes that (1) if it is unimaginable\textsubscript{H} that there exists something unperceived, then it is impossible that there exists something unperceived, and (2) it is unimaginable\textsubscript{H} that there exists something unperceived, and concludes (3) it is impossible that there exists something unperceived. I have assumed (2) together with the denial of (3), and concluded that (1) is false.

\textsuperscript{21}Here I assume that necessarily, for any property P, if P is non-trivial and fails to confer any causal powers, then no one perceives that there exists something that instantiates P.
while some philosophers have held that no non-trivial property could be causally idle (let alone essentially causally idle), their view is quite contentious.\(^\text{22}\)

Perhaps these difficulties can be overcome. One might, for example, simply restrict Patchwork to the “right sort” of intrinsic natures – where those are roughly the ones whose presence can be detected via perception – and then tailor PO-IM to deliver that restricted version. I don’t know whether this will satisfy Patchwork’s adherents. But it does not much matter since Patchwork\(_{\text{IM}}\) is in even bigger trouble than PO-IM. The consequent of (an instance of) Patchwork\(_{\text{IM}}\), under the suggested interpretation, obviously implies the following (I have simply “filled in” the third condition necessary for imagining\(_{H}\)):

- for any spatiotemporal arrangement of an instance of \(Q_1\) and an instance of \(Q_2\), possibly there is a mental state \(S_1\) such that possibly there is a mental state \(S_2\) which is (a) a state of \textit{perceiving} that there is something that has intrinsic nature \(Q_1\) and something that has intrinsic nature \(Q_2\) in that very spatiotemporal arrangement and (b) “internally indistinguishable” from \(S_1\).

Unfortunately, this is grotesquely complicated, due to the nested possibility operators and “indistinguishable” mental states to which it refers. Fortunately, it is needlessly so, since it is equivalent to the following\(^\text{23}\):

- for any spatiotemporal arrangement of an instance of \(Q_1\) and an instance of \(Q_2\), possibly there is a mental state \(S\) which is a state of \textit{perceiving} that there is something that has intrinsic nature \(Q_1\) and something that has intrinsic nature \(Q_2\) in that very spatiotemporal arrangement

Now it’s much easier to see what the consequent of (an instance of) Patchwork\(_{\text{IM}}\) \textit{says}, and just as easy to see that there is no good reason to believe Patchwork\(_{\text{IM}}\).

\(^{22}\)For several points of entry into the literature on their view, see nt. 5; for an excellent critical discussion of their view, see Hawthorne (2001a).

Note also that their view is very difficult to square with Patchwork – at least if there are any non-trivial intrinsic properties at all (§5) – and so it seems dialectically inappropriate, if not epistemically objectionable, to assume their view in an argument for Patchwork.

\(^{23}\)In saying they are equivalent, I am assuming a system of modal logic as strong as S4 and that every mental state is internally indistinguishable from itself.
If you recall, I offered a two-step defense of Patchwork\textsubscript{IM}: first I defended the claim that, assuming the antecedent of (an instance of) Patchwork\textsubscript{IM}, it is possible to represent (in imagination) there being instances of the intrinsic natures specified in the antecedent; and then I defended the further claim that, assuming the antecedent of (an instance of) Patchwork\textsubscript{IM}, it is possible to represent (in imagination) instances of the specified intrinsic natures standing in the specified spatiotemporal relation. I explained how to construct mental images which depict those scenarios, given that one can construct mental images depicting instances of each of the intrinsic natures. All that is well and good, but it is entirely beside the point if we are interpreting ‘imagine’ in the statement of Patchwork\textsubscript{IM} to mean the same as ‘imagine\textsubscript{H}’. It is one thing to have a mental image which depicts a certain scenario and quite another thing to perceive its obtaining: for one thing, the latter but not the former entails that the scenario obtains. And so one can’t infer the possibility of perceiving a certain state of affairs from the possibility of having a mental image which depicts it. But then my original defense of Patchwork\textsubscript{IM} is no defense at all. And I have no idea how else I would go about defending Patchwork\textsubscript{IM}, apart from assuming (the universal closure of) its consequent or assuming Patchwork\textsubscript{Pared-Down}; since (the universal closure of) its consequent obviously implies Patchwork\textsubscript{Pared-Down}, assuming it would render the Imaginability Argument superfluous, and of course assuming Patchwork\textsubscript{Pared-Down} would likewise render the Imaginability Argument superfluous.

So much for the first interpretation of ‘imagine’. The primary source of its failure was that its standard of application was too demanding. In particular, it built in the requirement that the imagined state of affairs was possible; that of course made IM-PO plausible, but it made Patchwork\textsubscript{IM} much less so. So let’s instead replace ‘imagine’ with ‘imagine\textsubscript{L}’ (‘imaginable’ with ‘imaginable\textsubscript{L}’).

The correct response to the argument now seems to be this. PO-IM and Patchwork\textsubscript{IM} are both extremely plausible. For any proposition \( p \), imagining\textsubscript{L} \( p \) is just so easy to
do. As long as someone can entertain \( p \) – as long as someone can be in a mental state whose content is \( p \) – then it ought to be possible for someone to believe, desire, deny, and imagine\(_L\) \( p \): one’s mental state (whose content is \( p \)) simply has to confer the right dispositions. And although some propositions might not be entertainable by creatures like us, it’s hard to see how they could fail to be entertainable, period. But by that same token, IM-PO is extremely implausible. I can certainly entertain the impossible proposition that there is a round square – otherwise I couldn’t deny it – and I can likewise imagine\(_L\) it. So IM-PO is false.\(^{24}\)

That was quick, but, I think, correct. So much then for the Low Standards interpretation of ‘imagine’. I do not claim that the two interpretations I have considered exhaust the plausible ones; indeed, they seem to lie at opposite ends of a whole spectrum of plausible interpretations, ones which are stronger than ‘imagine\(_L\)’ but weaker than ‘imagine\(_H\)’ (in the sense that necessarily, anyone who imagines \( p \) in any of the other senses, imagines\(_L\) \( p \), and necessarily, anyone who imagines\(_H\) \( p \), imagines \( p \) in all of the other senses). Nevertheless, our consideration of those two interpretations was quite instructive, since all the “middling” interpretations of which I am aware fall prey to one of the two problems that we have seen: either they are weak enough so that PO-IM and Patchwork\(_{IM}\) are both plausible, but then IM-PO is not, or they are strong enough so that IM-PO is plausible, but then there is no good reason to believe Patchwork\(_{IM}\) apart from assuming Patchwork\(_{Pared Down}\). I will not examine all such accounts here: the difficulty in executing that task is due in part to the size of the literature on “conceivability (imaginability)-possibility principles” (and the apparent counterexamples from Kripkean necessary \( a \) \textit{posteriori} truths) and in part to the sig-

\(^{24}\)See also Thomas Reid’s \textit{Essays on the Intellectual Powers of Man}, Essay IV Chapter 3 (1969, 431–4) and Casullo (1975). Reid is considering an account of conceiving rather than imagining, and it’s a slightly different account at that: on his account, to conceive a proposition “is no more than to understand distinctly its meaning”. He is clearly talking about conceiving \textit{a sentence} rather than the proposition it expresses. Nevertheless, as I intimated above, it seems to set a standard that is equivalent to imaginability\(_L\): that is, a proposition \( p \) is imaginable\(_L\) iff it is possible to understand a sentence that expresses \( p \).
nificant vagueness and lack of clarity that afflicts many of those accounts. But I will consider one such account to illustrate the difficulties faced by the Imaginability Argument.

Chalmers (2002) defines a notion, positive conceivability, that could potentially serve as an interpretation of ‘imagine’ in the Imaginability Argument. S is positively conceivable, Chalmers says, when it is coherently modally imaginable. (153) ‘Modal imagination’, Chalmers tells us, “is used here as a label for a certain sort of familiar mental act. Like other such categories, it resists straightforward definition.” (151) And a situation is coherently imagined “when it is possible to fill in arbitrary details in the imagined situation such that no contradiction reveals itself.” (153). Finally, S is coherently modally imaginable when it is possible to “coherently imagine a situation such that reasoning about the imagined situation reveals it as a situation that verifies S.” (153)

Now, there is much in this account that I do not understand. For one thing, I do not know what Chalmers means by ‘modal imagination’. And for another, I do not know what Chalmers means when he says that a situation, which I take to be a state of affairs, reveals or contains a contradiction. I know what it is for a sentence of a language to contain a contradiction - that is a well-defined notion of course – and I can think of various ways of explicating the notion that a situation contains a contradiction, but I do not know which of those ways, if any, Chalmers has in mind. Nevertheless, howsoever Chalmers goes about clarifying these issues, it seems that if ‘imagine’ in the Imaginability Argument is replaced by ‘positively conceive’, then the argument will be no good. We can query Chalmers: would a situation in which something is both red all over and green all over be one which “contains a contradiction”? If Chalmers answers no, then IM-PO is false; after all,

25The recent article by Ichikawa and Jarvis (2011) is an admirable exception; however, its account is likewise of no help in making the Imaginability Argument work.
it is impossible that there be anything that is both red all over and green all over, and yet it would be positively conceivable.\textsuperscript{26} If Chalmers answers yes, as I suspect he would, then it is very hard to see why we should believe Patchwork\textsubscript{IM}, apart from assuming Patchwork\textsubscript{Pared Down} to begin with. Why think there is no situation that is a “recombination” of possible situations and which “contains a contradiction” of the green-and-red-all-over variety, apart from assuming that there is no situation that is a “recombination” of possible situations and which is impossible? I don’t know.\textsuperscript{27}

3.2 The Argument from Mystery

3.2.1 The Argument

Hume has left us wanting; perhaps Lewis can do better. Lewis quite clearly thinks that IM-PO is false, and, as a consequence, that the IMAGINABILITY ARGUMENT is unsound. Indeed, he think that IM-PO has some applicability – roughly, in “simple” cases that aren’t too distant from actuality – but any such application is licensed in turn by Patchwork.\textsuperscript{28} Thus, it could hardly serve as a justification for accepting Patchwork in the first place. Why, then, does Lewis accept Patchwork? He doesn’t

\textsuperscript{26}This problem does not go away if we instead employ Chalmer’s stronger notion, ideal positive conceivable. We can query him with the same question, and if he answers no, then IM-PO is still false.

\textsuperscript{27}Or at least I don’t know of any such reason which isn’t a reason to accept Patchwork\textsubscript{Pared Down} that is quite independent of considerations about imagination. The argument I will give in §3.2.1 constitutes a reason to think that there is no situation that is a “recombination” of possible situations but which “contains a contradiction” of the green-and-red-all-over sort, and that reason is not itself Patchwork\textsubscript{Pared Down}; however, it is a reason to accept Patchwork\textsubscript{Pared Down} that is quite independent of considerations about imagination.

\textsuperscript{28}Here’s Lewis: “We sometimes persuade ourselves that things are possible by experiments in imagination. We imagine a horse, imagine a horn on it, and thereby we are persuaded that a unicorn is possible. But imaginability is a poor criterion of possibility. We can imagine the impossible, provided we do not imagine it in perfect detail and all at once...We get enough of a link between imagination and possibility, but not too much, if we regard imaginative experiments as a way of reasoning informally from the principle of recombination. To imagine a unicorn and infer its possibility is to reason that a unicorn is possible because a horse and a horn, which are possible because actual, might be juxtaposed in the imagined way” (1986b, 90).
say very much about the matter, but what he does say is instructive, I think. He refers to any potential violation of Patchwork as involving an “unintelligible necessary connection”:

It cannot be, for instance, that there is an absolutely necessary connection (as opposed to a contingent law of nature) whereby every charged particle must be exactly a certain distance from another particle. It’s one thing for the particle to be charged, another thing for two particles to be at a certain distance – the common involvement of the same particle is not enough to make the alleged connection intelligible (1986b, 181, emphasis mine)

This remark is strongly suggestive of another argument for Patchwork, which I shall call ‘The Argument from Mystery,’ and which goes roughly as follows: for any proposition that is absolutely necessary, there has to be some explanation of its necessity, some answer to the question, “But why couldn’t things be otherwise?” In a nutshell, there are no mysterious necessities. In some cases, the explanation of the fact that proposition $p$ is necessary is the fact that proposition $q$ is necessary; presumably, though, explanations of that sort can’t “go on forever,” and so in some cases, the explanation of the fact that proposition $p$ is necessary will be the fact that proposition $q$ is true, where proposition $q$ does not “say” of another proposition that it’s necessary. (Proposition $q$ might be necessary – it might well be that one can’t explain why a certain proposition is necessary by citing one that is contingent – but there won’t be any proposition $r$ such that $q$ is the proposition that $r$ is necessary.29)

For example, what is the explanation of the fact that it’s not the case that Hesperus is distinct from Phosphorus is a necessary truth, i.e. that Hesperus and Phosphorus can’t come apart? It seems to me that there is a straightforward explanation for this fact, which is that Hesperus is identical with Phosphorus is true. It’s not as though Hesperus is identical with Phosphorus because “they” have to be! Hesperus can’t

29On whether a contingent truth can be a sufficient explanation of why a certain proposition is necessary, see Blackburn (1987) and Hale (2002).
come apart from Phosphorus because Hesperus is Phosphorus.

But here’s the thing: any violation of Patchwork would involve a proposition that is absolutely necessary but which lacks an explanation of its necessity. The basic reason is that an intrinsic nature is *intrinsic*, and so it is never instantiated in virtue of its bearer’s relation to anything other than its parts; but if there were some explanation of the fact that, say, the instantiation of intrinsic nature $Q_1$ requires (necessitates) the instantiation (by an object disjoint from the first) of intrinsic nature $Q_2$, then one of those two intrinsic natures would be instantiated, in some possible situation, in virtue of its bearer’s relation to something other than its parts; but then it wouldn’t be an intrinsic nature after all.

So goes the rough idea of the argument. However, in order to make this more precise and avoid making false claims about explanation, we should really be using modal *operators* rather than modal *predicates*, and we should not be using the predicate ‘$p$ is true’ at all. (Consider this explanation of the fact that *it’s not the case that Hesperus is distinct from Phosphorus* is a necessary truth: the fact that necessarily, it’s not the case that Hesperus is distinct from Phosphorus. That seems to be the right explanation – just as the explanation of the fact that *Hesperus is identical with Phosphorus* is a truth seems to be the fact that Hesperus is identical with Phosphorus – but it differs from the one I suggested two paragraphs ago. The reason is that the explanandum I *really* had in mind two paragraphs ago was this: the fact that necessarily, it’s not the case that Hesperus is distinct from Phosphorus. That explanandum does not *refer* or *name* a proposition, and it makes no use of modal predicates. And the explanation of *it*, I contend, is that Hesperus is identical with Phosphorus, and not – as I put it two paragraphs earlier – the fact that the proposition *Hesperus is identical with Phosphorus* is true. These niceties could be safely ignored if we weren’t discussing explanation!)
So let’s say this: a sentence $X$ is necessity-attributing iff for some sentence $Y$, $X$ is the sentence $\Box Y$. And then say that a proposition $p$ is necessity-attributing iff $p$ can be expressed by some necessity-attributing sentence. Then we can put The Argument from Mystery this way:

1. For any true necessity-attributing proposition $p$, there is some true proposition which explains $p$

2. If Patchwork is false, then there is some true necessity-attributing proposition $p$, such that there is no true proposition which explains $p$

C. Patchwork is true

3.2.2 Varieties of Explanation

Each of the premises calls for a more thorough defense than I provided in the brief sketch above, and I will soon turn to the task of providing such a defense, but I first need to clarify the notion of explanation that features in both premises. As Aristotle already noted, explanation (or a close relative) comes in several varieties. When the Scarecrow asks the Lion “What makes you a coward?” and the Lion replies, “It’s a mystery. I suppose I was born that way,” they are talking at cross purposes because they have in mind different notions of explanation: the Scarecrow is asking for what we might call a metaphysical explanation, for an explanation of what it is about the Lion’s condition at present in virtue of which he is a coward, while the Lion takes him to be asking for a causal explanation, for an explanation of how the Lion got to be a coward. And while it may be a mystery to the Lion how he got to be a coward, it shouldn’t be a mystery to him what it is about him in virtue of which he is a coward (he has an aversion to trying to find supper even when he’s hungry, he prefers not to start up with tigers unless he’s put on the spot, etc.).

The notion of explanation at play in The Argument from Mystery is not

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30 Physics II 3 (1941, 240–2) and Metaphysics V 2 (1941, 752–4).
of the causal variety, of course. I don’t assume that any necessary truth is such that there is a causal explanation of its necessity (or its truth), let alone that every necessary truth is that way. Indeed, I’m not sure it even makes sense to suggest that there is a causal explanation of the necessity of some truth. (I do think it makes sense to suggest that there is a causal explanation of a necessary truth: if Spinoza had been right, every truth would have been a necessary truth, and it seems like it would still make perfectly good sense, even if that had been so, to suggest that there are causal explanations of many facts about the world. But what I find difficult to make sense of is that the necessity of some proposition is itself susceptible to causal explanation.) The notion at play is rather of the metaphysical variety.

Now, ‘metaphysical explanation’ is a technical, or theoretical, term, but we can get a grip on its meaning in a few ways. First, we can note as we have done already that it refers to a non-causal sort of explanation. Second, we can note that there is a term which plays a role in ordinary discourse, ‘in virtue of’ – as in “The vase is fragile in virtue of the fact that its constituent atoms are in such-and-such an arrangement” – with which I stipulate it is synonymous.31 (Why not just cut to the chase and speak solely in terms of the ‘in virtue of’ locution? Because this way we emphasize that we are dealing with a species of explanation.) Third, we can give examples in which the relation metaphysical explanation plausibly obtains and ones in which it doesn’t. Here are a couple of stock examples from the literature: the fact that Jupiter and Mars exist metaphysically explains the fact that the set \{Jupiter, Mars\} exists, and not vice-versa; the fact that Joe’s act was the willful killing of an innocent baby for no reason other than that he didn’t like the baby metaphysically explains the fact that Joe’s act was wrong, and not vice-versa.32 You may disagree about whether these

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31When I say that I stipulate that they’re synonymous, I mean that any instance of “fact F obtains in virtue of fact G” is synonymous with the corresponding instance of “fact G metaphysically explains fact F.” (Note: I am thinking of a fact just as a true proposition.)

32For some other examples and a good point of entry into the literature, see Schaffer (2009a).
claims are true, but I assume you understand them. Finally, we can develop a theory of its logical features, of both its ‘pure logic’ and its ‘impure logic’, where the former but not the latter prescinds from the internal structure of the facts involved. (Thus, the question of whether the relation is transitive belongs to its pure logic, while the question of whether every instance of this schema is true: \( [\phi] \) metaphorically explains \( [\phi \text{ or } \psi] \), belongs to its impure logic.)\(^{33}\) Indeed, such theories have already been propounded, along with soundness and completeness proofs to boot.\(^{34}\) These logical features capture much of what we implicitly assume when reasoning about metaphysical explanation, and go part of the way toward capturing the meaning of ‘metaphysical explanation’.

Much more can be said to make clear what I mean exactly by ‘metaphysical explanation’ – for one thing, I could lay out what \textit{I} take to be the correct pure logical and impure logical theories of the term, and for another I could go on with many more examples in which I think the relation plausibly obtains – but I will instead trust that what I have said suffices for the purposes of clarifying \textsc{The Argument from Mystery}.

3.2.3 Defending the Premises

3.2.3.1 Defense of Premise One

Now it is time to offer a defense of the premises. One might support the first premise with the claim that \textit{every} fact, \textit{every} true proposition, has an explanation; with the claim, that is, that there is \textit{no bruteness at all}. But for me to rely on that claim in a defense of the first premise would be ill-advised. That claim is an especially strong form of the so-called Principle of Sufficient Reason (PSR), a principle that is

\(^{33}\)Where ‘\(\phi\)’ is replaced by a sentence and ‘\([\phi]\)’ abbreviates ‘the fact that \(\phi\)’.

\(^{34}\)See Correia (2010) and Fine (2012b; 2012a). About two centuries earlier, Bolzano developed a fairly comprehensive logical theory of his \textit{Abfolge}, or grounding, relation: see Tatzel (2002).
already so strong that it apparently implies that every truth is a necessary truth.\textsuperscript{35} It is especially strong because it makes no exceptions: in particular, it makes no exception for certain \textit{necessary truths}, an exception that I would certainly like to allow.\textsuperscript{36} Thus, I prefer to offer a defense of the first premise that does not rely on any claim so general as an unexcepted PSR. It will instead rely on the consideration of an example together with a generalization therefrom to a restricted class of cases that seem relevantly similar to the example.

Consider the following scenario: three philosophers, Alf, Bill, and Sofia, are engaged in a debate about the implications of the fact that certain physical constants, like the cosmological constant, are exquisitely fine-tuned to permit life. Alf argues that this fact implies that it is very likely that the universe was designed by a purposive agent who wanted there to be life; Bill argues that this fact implies that it is very likely there are a huge number of “universes” – perhaps infinitely many – of which our observable “universe” is just one; Sofia argues that this fact implies neither of those things – even given that fact, she says, it is not unlikely that our universe, which is all there is, came to be wholly by chance.

After they bicker for several hours, God descends upon them and enters the fray: “None of you has spoken correctly about the matter of fine-tuning. As a matter of fact, the correct account is that “our universe” is all there is, and it’s just a necessary truth that the constants have the particular values that they do.” Perplexed by this, Alf asks God whether He means by ‘necessary’ something like ‘nomologically necessary’, i.e., that it’s a necessary truth that if the laws of nature are what they in fact are, then those constants have the values they have. God says “no” – that might be true, but it’s not to the point, and He always speaks to the point. Perplexity still

\textsuperscript{35}\textsuperscript{35}van Inwagen (2009b); Pruss (2006) argues that the PSR does not in fact have that implication, but I am not convinced by his argument.

\textsuperscript{36}See Pruss (2006, 10-13). Note, it also makes no exception for \textit{truths that can’t possibly be explained}, an exception which Pruss (2004) is willing to make.
in the air, Bill asks God whether there is some deeper explanation of the fact that the cosmological constant, say, has to have the value it does, some necessary truth from which one can deduce and shed light on the necessity of the cosmological constant’s having the value it does. God says “no” – there is no deeper explanation for the fact that it has to have that value, indeed, no explanation at all, it just does. If one asks, God continues, why the cosmological constant couldn’t have had a slightly higher value, or have been negative, the correct answer is, ”No reason, it just couldn’t and there’s an end on it.” With the perplexity only heightened, Sofia asks God whether He’s testing them and their philosophical commitment to understanding. God says “no” – He’s done that before, but this isn’t the time or the place for such things. So the scene ends.

What should the trio think? It seems to me obvious that they should think that either they have misunderstood what God said or they are deeply conceptually confused (or that God’s final answer was itself part of a test). If we know anything about modal concepts, we know that the fact that the cosmological constant has to have the value it does (if there is such a fact) cannot be brute: bruteness might be tolerable in some cases, but not here. To quote Lewis’s incredulous questions about a similar case, “I have been tolerant – maybe too much so – toward primitive modality; but here, the primitive modality is especially repugnant...How can these connections be necessary?...What stops it from going the other way?” (1986b, 179–80) But now, if we ask ourselves why bruteness has no place here – and we reflect on similar cases in which we’d render the same verdict – I think we can see that there is no satisfying and principled answer other than that the proposition here is necessity-attributing, and bruteness is intolerable when it comes to any (true) necessity-attributing proposition; or, more cautiously, that there is no satisfying and principled answer other than one that entails that claim (such as the stronger claim that bruteness is intolerable when it comes to any (true) necessity-attributing or...
(true) possibility-attributing proposition). But to say that bruteness is intolerable when it comes to any true necessity-attributing proposition is just to endorse the first premise.

3.2.3.2 Objection: Apparent Counterexamples

The primary objection I anticipate to the first premise is just that it is subject to apparent counterexamples. That is, there are propositions which appear to have the following feature: they are true, necessity-attributing, and brute. And if there are propositions that in fact have that feature, then the first premise is false. Here are examples of propositions that appear to have that feature:

1. Necessarily, for all natural numbers $m$ and $n$, if the successor of $m = n$, then $m = n$
2. Necessarily, for any $x$ and $y$ and property $P$, if $x = y$ and $x$ has $P$, then $y$ has $P$
3. Necessarily, everything extended has a shape
4. Necessarily, it’s not the case that Aaron is a doorknob

With respect to each of these examples, it seems that we’ve hit explanatory bedrock; nothing further explains them, and yet, they are each true and necessity-attributing. Or so says the objector.

But I don’t see why we should agree. In each case there seems to be a perfectly good explanation of the target proposition, and one which is itself not necessity-attributing: it is an explanation in terms of the nature – or essence (I will use the terms interchangeably) – of certain objects or concepts. Kit Fine puts the general point as follows:

For each class of objects, be they concepts or individuals or entities of some other kind, will give rise to its own domain of necessary truths, the truths which flow from the nature of the objects in question. The metaphysically necessary truths can then be identified with the propositions which are true in virtue of the nature of all objects whatever.
Other familiar concepts of necessity (though not all of them) can be understood in a similar manner. The conceptual necessities can be taken to be the propositions which are true in virtue of the nature of all concepts; the logical necessities can be taken to be the propositions which are true in virtue of the nature of all logical concepts; and, more generally, the necessities of a given discipline, such as mathematics or physics, can be taken to be those propositions which are true in virtue of the characteristic concepts and objects of the discipline. (1994)

Also, Bob Hale:

An explanation of this kind works – explains why it is necessary that \( p \) – by claiming that \( p \)’s truth is a consequence of, or is ensured by, the nature or identity-conditions of something involved [in] that truth (e.g., what it is to be an object of a certain kind, or what it is to be a particular function, or relation, etc.). (2002)

Thus, we might say that proposition (1) is true in virtue of the fact that successor of and natural number have the nature they do ((1) is, in Fine’s terms, a mathematical truth), proposition (2) is true in virtue of the fact that identity has the nature it does ((2) is, in Fine’s terms, a logical truth), and so on.\(^\text{37}\)

As Fine emphasizes, these explanatory claims are true only if we discriminate among the properties that are standardly considered essences, that is, among the properties that were called ‘essences’ between roughly 1970 and the turn of the twenty-first century. A fairly standard modal characterization of essence is this: \( P \) is an essence of \( x =_{dt} \) (a) necessarily, if \( x \) exists, then \( x \) has \( P \) and (b) necessarily, if anything has \( P \), then it is identical with \( x \).\(^\text{38}\) We can call any such property of \( x \) a modal essence of \( x \). But that notion of essence is too liberal for our purposes: as Fine notes, the property being a member of Aaron’s singleton set is a modal essence of mine, but it doesn’t seem that the fact that I have that property is any part of

\(^{37}\text{See also Lowe (2006; 2008).}\)

\(^{38}\text{See, e.g. Plantinga (1974).}\)
the explanation of proposition (4). So not just any old (modal) essence will do the trick of explaining the necessary truths. We want to focus rather on properties of a thing that somehow capture what it is to be that thing.

The idea that there are such properties goes back at least to Aristotle: on some occasions he says that a thing’s essence is its definition, or at least that it can be expressed by stating its definition. Of course, contemporary philosophical wisdom has it that most things don’t have definitions; only linguistic entities, like words or phrases, have definitions. And this piece of received wisdom seems right to me. It seems like a category mistake to suggest that I could be defined. So if we were to identify essence with definition we would have to conclude that most things don’t have essences, and that the above explanatory claims are all false.

But there does seem to be something obviously right about the idea that we can intelligibly ask and answer, at least about many things, the question “What is the nature of that? What is it to be that thing?” In particular, I think it’s obvious that we can intelligibly ask and answer that question about properties, or relations more generally. When it comes to properties, it seems like a perfectly good answer to that question involves laying bare what one says when one says that something has that property. Consider, for example, the property oddness. That property has many second-order properties: some of them are unique to that property, such as the second-order property being the property Aaron referred to in §3.2.3.2 in the sentence that began “Consider, for example”. Some of them are even modal essences of that property, such as the second-order property being the property Aaron referred to in §3.2.3.2, in the sentence that began “Consider, for example,” in α. But neither of those second-order properties in any way lays bare what one says when one says that

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39 I do not mean to suggest that there is something defective or inappropriate about the modal characterization of essence; different tasks call for different concepts.

something has the property.

By contrast, the second-order property *being the property of oddness* does lay bare what one says when one says that something has the property *oddness*: it lays bare that one says that the thing is odd. And some properties lay even more bare: the second-order property *being a property something has whenever it is one greater than an integer multiple of two* of the property *oddness* certainly lays bare what one says when one says that something has the property *oddness*: it lays bare that one says that the thing is one greater than an integer multiple of two. In more standard terms, it corresponds to an *analysis* of the property *oddness*. Perhaps it makes sense to call both of those second-order properties “essences” of the property *oddness*, although I suspect that most of the time, the second, more revealing, essence will be called for in an explanation of a true necessity-attributing proposition. (Although it need not always. Whether it always does is a substantive question, one which can reasonably be put as “Are all necessary truths analytic?” I am not taking a stand on that question here, and well-known considerations lead me to believe a negative answer to that question.)

Now, all that is well and good when it comes to propositions (1)-(3), which are “wholly qualitative”. But, you might ask, what about propositions which are not? Proposition (4), for example, essentially involves *Aaron*, not just qualities like *oddness* and *extension*. What is the explanation of that proposition supposed to be? Which essences is it supposed to involve? Here, I think, the proponent of the first premise has two available lines of response. One is to dig in her heels and say that the explanation of a necessity-attributing proposition, which, like (4), is not wholly qualitative, involves an essence of whatever particular is involved in the explanandum. Thus, the explanation of proposition (4) is that I have the nature or essence that I in fact have. Or, if this is any different, it’s in virtue of the fact that the property *being identical with Aaron* has the nature or essence *it* has.
It is admittedly not obvious what my essence is (in the non-modal sense of ‘essence’). And it is hardly more obvious what an illuminating essence of the property being identical with Aaron is; that is, it is hardly more obvious what one says when one says that someone has the property being identical with Aaron, beyond just that that someone is identical with Aaron. But first, even if it’s not obvious, one might still have an informed opinion about it. Aristotle seems to have thought that my essence was being a two-footed animal; Descartes might have thought that my essence was being a thinking thing (he certainly thought that was a modal essence of mine); and some contemporary philosophers might well think that my essence is being a member of the species Homo Sapiens. And all of those thoughts are consistent with its being far from obvious what my essence is. And second, even if we have no inkling what my essence is, that need not shake our confidence that proposition (4) has an explanation in terms of my essence, as long as we can see that whatever my essence is, the fact that it is my essence explains proposition (4). (I think I can see that whether my essence is being a rational animal, being a thinking thing, or being a member of the species of Homo Sapiens, the fact that it is my essence sufficiently explains proposition (4).)

But some philosophers might understandably deny, or at least not accept, that I have an essence at all, that we can intelligibly ask and answer the question, “What is my nature?”. So there is a second line of response for the proponent of the first premise, which is to say that some true necessity-attributing propositions are explained not by facts about an essence at all, but by more quotidian facts about

41On Aristotle, see his Metaphysics VII 12 (1941, 803); on Descartes, see his Meditations VI (1996, 50–62); on contemporary philosophers: Olson’s (1997; 2007) Animalism most certainly does not include a commitment to any claim about our essence – modal or otherwise – but some of Olson’s arguments for Animalism and his Biological Continuity View about personal identity rely on a claim that the most specific natural kind to which we belong (our infima species, in Aristotle’s terminology) is being a member of the species Homo Sapiens: and replying with a thing’s infima species seems like a good answer to the question “What is that thing’s nature?”
In particular, some necessity-attributing propositions just amount to the claim that every possible that is similar enough to such-and-such is such-and-so, where the relevant dimensions and degrees of similarity are left implicit. Explanations of propositions of this sort will presumably consist in further claims about similarity. Notably, this option relies on a counterpart-theoretic semantics for de re modal claims. (Or at least it doesn’t appear to be remotely plausible unless such a semantics is correct. If de re modal claims wear their meanings on their sleeves, as philosophers like Kripke (1980, 45) and Plantinga (1977, §2) famously contend, then it seems obvious that a claim about similarity will not be a sufficient explanation of a necessity-attributing proposition expressed by a sentence containing a de re modal locution.) But I don’t think that is a very serious objection to the first premise: indeed, a Humean could reasonably make use of the first premise not only to argue for Patchwork, but for a counterpart-theoretic semantics as well.

3.2.3.3 Defense of Premise Two

The reader might naturally wonder whether in my response to the objection in the previous section, I have eviscerated the first premise to the extent that it is trivial or useless. If one can explain a necessity-attributing proposition in terms of essences, then the repudiation of brute necessity-attributing propositions doesn’t seem to commit one to anything philosophically substantive. Put quite simply: is there any necessity-attributing proposition which couldn’t be explained in that way?

The answer is “Yes, there is,” and that’s the core of my defense of the second premise. The second premise says that if Patchwork is false, then there is some necessity-attributing proposition which is brute. And the reason to think so is that if Patchwork is false, then there is some necessity-attributing proposition which must be brute, which couldn’t be explained. To see why that’s so, I need to say something

\(^{42}\)See §1.2.
more about what it is for a property to be intrinsic.

In §1.3.2, I defined a family of intrinsicality terms – ‘intrinsic property,’ ‘intrinsic nature,’ ‘intrinsic to $x$,’ ‘intrinsic nature of $x$’ – ultimately in terms of ‘exact replica,’ or in Lewis’s terms, ‘intrinsic duplicate’. That was satisfactory for the purpose of formulating an intelligible and non-trivial thesis. But in order to defend that thesis, I will need to say something about how that notion of intrinsic duplication (i.e., exact replication) connects to the intuitive characterization of an intrinsic property as one that is possessed solely in virtue of how its bearer is. As Lewis puts the intuitive idea, “A thing has its intrinsic properties in virtue of the way that thing itself, and nothing else, is. Not so for extrinsic properties, though a thing may well have these in virtue of the way some larger whole is. The intrinsic properties of something depend only on that thing; whereas the extrinsic properties of something may depend, wholly or partly, on something else.” (1983a

The connection I propose is the following very straightforward analysis. First, define ‘basic intrinsic property’ by using the intuitive characterization, as follows:

$P$ is a basic intrinsic property $=_{df}$ (1) Necessarily, it’s not the case that there exists an $x$ and a $y$ such that (i) $y$ is not part of $x$ and (ii) $x$ has $P$ either partly or wholly in virtue of the fact that $y$ has the properties it does AND (2) Necessarily, it’s not the case that there exists an $x$ and $Q$ such that $x$ has $P$ either partly or wholly in virtue of the fact that there is nothing that isn’t part of $x$ that has $Q$.

In a later article, Lewis (2001a) eschews this intuitive characterization as an analysis because he thinks we don’t understand well enough the locutions (such as ‘in virtue of’ and ‘depend’) which it involves. In the earlier article, on the other hand, he seemed quite comfortable with the intelligibility of those terms, and eschewed the intuitive characterization on the grounds that they made for too “tight a family” of interdefinables to be of provide a deeply illuminating conceptual analysis. As should be clear from §3.2.2, I think those notions are well enough understood for philosophical purposes, and as I said in §1.3.2.1, my project is not to break out of a circle of interdefinables which Lewis finds too tight, but to state, and now defend, an intelligible and non-trivial thesis.

Note, my definition of ‘basic intrinsic property’ differs from that in Langton and Lewis (1998) and Lewis (2001a), although the use to which I am putting the definition is the same. See §1.3.1.
That is, basic intrinsic properties are not possessed in virtue of the way “the rest of
the world is”. Then I propose to analyze ‘intrinsic duplicate’ in terms of the sharing
of basic intrinsic properties, as follows:

\[ x \text{ and } y \text{ are intrinsic duplicates } \equiv_{df} \text{ for any basic intrinsic property } P, \ x \text{ has } P \text{ iff } y \text{ has } P \]

My stipulative definitions in §1.3.2 of the intrinsicality terms are to be understood
in terms of ‘intrinsic duplicate’ as I have now just analyzed it.

To forestall misunderstanding, I should emphasize that I am not offering yet
another stipulative definition, this time of ‘intrinsic duplicate’. I am instead proposing
a substantive conceptual analysis. I am claiming, in effect, that any time two things
are intrinsic duplicates (and hence share all intrinsic properties, including an intrinsic
nature) – a condition I think we can often identify without knowing anything about
the metaphysical explanations of facts involving them and their properties – we can
go on to infer that they share all basic intrinsic properties; and conversely, any time
two things share all basic intrinsic properties, we can go on to infer that they are
intrinsic duplicates (and hence share all intrinsic properties, including an intrinsic
nature).

And now I can resume my defense of the second premise of The Argument
from Mystery. My proposed analysis has the following important implication: as

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45 It is a consequence of my definition that impossible properties are all basic intrinsic. (That
also follows from the facts – assuming they are facts – that the set of basic intrinsic properties is
closed under negation and that all trivial (necessarily universally instantiated) properties are basic
intrinsic.)

46 Why, you might reasonably ask, do I need so many links in the chain of analysis? Rather than
defining ‘intrinsic property’ in terms of ‘intrinsic duplicate’, and then analyzing ‘intrinsic duplicate’
in terms of ‘basic intrinsic property’, which is in turn defined in terms of metaphysical explanation,
couldn’t I just analyze ‘intrinsic property’ straightaway in terms of metaphysical explanation, and
define ‘intrinsic duplicate’ in terms of the sharing of intrinsic properties? You could, but unless you
go on to define another term (‘derived intrinsic property’?) to capture the notion of a property
that doesn’t differ between (actual or possible) intrinsic duplicates, then you will be missing out on
a notion that I have characterized; and if you do, then your sequence of definitions and analyses
seems to involve nothing other than a terminological variation on mine.
long as certain very plausible assumptions are true, every intrinsic nature is equivalent to some *maximal* basic intrinsic property.\(^{47}\) (The assumptions and argument for the implication are relegated to Appendix D.) Thus, as long as all maximal basic intrinsic properties are recombinable (in the manner Patchwork guarantees for intrinsic natures) – by which is just meant that a statement of Patchwork with ‘maximal basic intrinsic property’ uniformly replacing ‘intrinsic nature’, which I shall call Patchwork\(_{BI}\), is true – then all intrinsic natures are recombinable (in the manner Patchwork in fact guarantees). Put another way, if Patchwork is false, then Patchwork\(_{BI}\) is false. And if Patchwork\(_{BI}\) is false, then there is some true necessity-attributing proposition – one which says that it’s not possible for such-and-so maximal basic intrinsic property to be recombinable with so-and-such maximal basic intrinsic property – which *must* be brute. So if Patchwork is false, then there is some true necessity-attributing proposition which *must* be brute. And that of course implies the second premise of The Argument from Mystery.

But why, finally, should we think that if Patchwork\(_{BI}\) is false, then there is a true proposition which says that it’s not possible for such-and-so maximal basic intrinsic property to be recombinable with so-and-such maximal basic intrinsic property and which *must* be brute? The answer is, I hope, somewhat obvious, but it is perhaps best appreciated with the help of some anthropomorphism. Consider two strangers, who not only are unacquainted, but who are otherwise causally disconnected from each other: one cannot trace through a sequence of events, each one the cause or effect of the previous one in the sequence, that begins with an event involving the one and ends with an event involving the other. (There probably is no such pair; but play along.) Say they are each choosing a 10-digit number, and they are each able to choose *any* 10-digit number. If they both happen to choose 3,726,935,012, and

\(^{47}\)Where a *maximal basic intrinsic property* is a basic intrinsic property that is a conjunction of all the properties in a set of properties which has the following feature: for any basic intrinsic property, either it or its negation is a member of the set.
you knew about their causal disconnectedness, you’d undoubtedly be surprised. But
you’d have to chalk it up to coincidence. They were each able to choose many other
numbers, neither one causally influenced the other, and nothing causally influenced
them both. You couldn’t possibly explain the fact that they both chose the same
number. (You might be able to give a sufficient causal explanation of the fact that
Mr. A chose 3,726,935,012 and a sufficient causal explanation of the fact that Mrs.
B chose 3,726,935,012, but you won’t be able to give a sufficient explanation of the
fact that the causal process involving Mr. A and the causal process involving Mrs.
B led to the very same number. There is no explanation of that fact.)

I say an analogous point can be made in favor of my claim about the recombin-
ability of (maximal) basic intrinsic properties. Of course, we should not be misled
by the differences between the claim about number-choice and the one we are con-
sidering. In the case of choosing numbers, the events are causally isolated and the
claim is that therefore there can be no sufficient causal explanation of the fact that
they happen to have consisted in the choosing of the same number; in the cases we
are considering, the properties are (as we might say) metaphysically isolated and the
claim is that therefore there can be no sufficient metaphysical explanation of the fact
that they must (not) be in some pattern of instantiation.

But those differences notwithstanding, the anthropomorphic analogy is instruc-
tive: think of objects as people and the instancing of properties as choices made by
those “people,” in some sort of game, say. Some of an object’s choices (i.e. the instan-
tiation of some properties, the non-basic-intrinsic ones) are influenced by the choices
made by other objects, while other choices (i.e. the instantiation of other properties,
the basic intrinsic ones) are in any no way influenced by the choices of others. Then
choices of the latter sort made by different objects are independent of one another, in
the straightforward sense of ‘independent’: they don’t depend on one another, and
moreover, they don’t depend on any common source; there is no common influence.
(I stipulate that the only sources of influence are choices made by objects.) But then if a certain choice is available to be made but need not be made (i.e., a certain basic intrinsic property is possibly but not necessarily instantiated), then what could possibly explain a restriction on a pattern of choices involving it? Evidently the answer is, nothing. This bit of anthropomorphic reasoning is what leads me to conclude that if PatchworkBI is false, then there is a true necessity-attributing proposition which must be brute; and this nearly completes my defense of the second premise of The Argument from Mystery.

3.2.4 The Shape of Patchwork

The reason my defense is only nearly complete is that in the interest of keeping matters relatively straightforward in the previous section, I ran roughshod over certain details. But ironing out those details is what justifies the precise shape that Patchwork takes. To see what I mean, notice that Patchwork, which figures in the second premise, is quite a nuanced principle: it guarantees the possibility of not only the co-existence of objects instantiating any intrinsic natures, but their standing in any spatiotemporal (and mereological) arrangement; but not any spatiotemporal (or mereological) arrangement, only one that satisfies further conditions. Moreover, it guarantees the possibility of there being exactly a certain number of instances of certain intrinsic natures, and nothing else, but it makes exceptions for parts and sums of those things, or members of and sets of those things, or constituents of and states of affairs involving those things (depending on how the schema in §1.7 is filled in). The second premise says that if that very nuanced principle is false, then there is some true and inexplicable necessity-attributing proposition. And arguing for that requires more than the straightforward bit of anthropomorphic reasoning in the previous section: it requires an extension of that reasoning in ways that mirror the extension of a bare-bones version of the principle.
3.2.4.1 And Nothing Else

Let’s start with the latter issue. Patchwork guarantees not only the possibility of there being a horse head and a human torso, but of that’s *being all there is* (with some exceptions, to which I will return shortly and ignore for the remainder of this paragraph). And more generally, it guarantees not only the possibility of there being *at least* an arbitrary number of instances of arbitrary intrinsic natures, but of *there being nothing else*. Given how I’ve specified Patchwork\(_{BI}\), it too must guarantee not only the possibility of there being *at least* an arbitrary number of instances of arbitrary maximal basic intrinsic properties, but of *there being nothing else* as well. Why should we think that? Well, because we should assume that *existence* (or any other trivial property) is a basic intrinsic property; to say that something exists is to say something that is true of the thing solely in virtue of how its bearer and its bearer’s parts are.\(^{48}\) And then continuing the anthropomorphic bit of reasoning, we should note that there couldn’t be an explanation of why some objects’ choices *require other objects* to choose to play the game at all (the choice we can stipulate corresponds to *existence*). And so any true necessity-attributing proposition which said that the existence of so-many instances of such-and-such maximal basic intrinsic properties *entails* the existence of this-many instances of such-and-so (contingently instantiated) maximal basic intrinsic properties *would need to be brute*. But of course, by the first premise of The Argument from Mystery, there couldn’t be such a proposition.

But that was too quick. There could be an explanation of why *some* objects’ choices require other objects to choose to play the game at all if those latter objects bear the right relation to the former objects: the relation of *parthood* or its converse can do the trick. Remember, a basic intrinsic property is possessed solely in

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\(^{48}\)This assumption also follows from the fact that the set of basic intrinsic properties is closed under negation together with the fact that all impossible properties are basic intrinsic. See nt. 45.
virtue of how its bearer and its bearer’s parts are. So consider my body: it has many basic intrinsic properties. At least some of those basic intrinsic properties are ones it has in virtue of having the proper parts it does: like the property being bipedal. Perhaps the same goes for existence: perhaps it has that property in virtue of having the proper parts it does. That is, perhaps it (and anything composite?) exists in virtue of its proper parts. If that’s so, there might be a very good explanation of why some objects’ choices require other objects to choose to play the game. Or, to speak less anthropomorphically, there might be a very good explanation of some true necessity-attributing proposition which says that the existence of so-many instances of such-and-such maximal basic intrinsic properties entails the existence of this-many instances of such-and-so (contingently instantiated) maximal basic intrinsic properties. And that will be so when the respective choices are not independent of one another (that is, the instantiation of certain maximal basic intrinsic properties are not independent of one another), because one is instantiated in virtue of the instantiation of the other(s).

To illustrate: according to some philosophers, it’s a necessary truth that any two things are accompanied by a third thing, their sum. Moreover, it is quite plausible that on their view, the maximal basic intrinsic property instantiated by the sum is fixed by the maximal basic intrinsic properties of the parts (and the maximal basic intrinsic relations between them). So necessarily, any things that instantiate the maximal basic intrinsic properties instantiated by my body’s left half and my body’s right half (supposing there are such things) have a sum, and the maximal basic intrinsic property of the sum is the one my body instantiates. Now, need this necessity-attributing proposition be brute? Must this involve a brute necessary connection between maximal basic intrinsic properties? No, not if one can correctly explain the existence and (other) basic intrinsic properties of a whole at least partly in terms of the existence and (other) basic intrinsic properties of its parts. For then
the necessary connection itself has a perfectly good explanation, in terms of the natures, or essences, of the maximal basic intrinsic properties in question; and that explanation is not precluded by the fact that those properties are basic intrinsic, since there is nothing problematic about a basic intrinsic property being instantiated in virtue of the basic intrinsic properties of its bearer’s parts. By the same token, the fact that necessarily, anything that instantiates the maximal basic intrinsic property that I instantiate has parts which instantiate the maximal basic intrinsic properties instantiated by my body’s left half and my body’s right half, need not be brute. For that necessary connection has a perfectly good explanation, in terms of the natures, or essences, of the maximal basic intrinsic properties in question; and that explanation is not precluded by the fact that those properties are basic intrinsic, since there is nothing problematic about a basic intrinsic property being instantiated in virtue of the basic intrinsic properties of its bearer’s parts.

So we should make an exception for parts and sums, as long as it’s true that composites exist and have the intrinsic nature they do in virtue of their parts. For if that’s true, then an unexcepted Patchwork would guarantee the possibility of too much; it would rule out necessities which have perfectly good explanations. In other words, the second premise of The Argument from Mystery would be false if the Patchwork in play failed to make exceptions for parts and sums of the things whose possible existence is guaranteed.49

With this background, we are equipped to address the question of which exceptions to make: should Patchwork make an exception for sets of the things whose possible existence it guarantees? What about their members? That is, should the ellipses in the schema in §1.7 be replaced by “sets and members of those instances”? And the same question arises for Armstrongian concrete states of affairs and their constituents. Now we can see that the answer, in each case, turns on the question

49See Cameron (forthcoming) who makes the same point on more-or-less the same grounds.
of whether sets (states of affairs) exist in virtue of their members (constituents). If they do, then an exception for those things is warranted.\textsuperscript{50}

3.2.4.2 Spatiotemporal Arrangements and Overlap

Let me now turn to the fact that Patchwork guarantees the possibility of objects instantiating any intrinsic natures standing in \textit{any} spatiotemporal (and mereological) arrangement (as long as the arrangement meets two further conditions): no necessary connections between certain intrinsic natures and the spatiotemporal relations in which their instances stand. Why should we believe the second premise of \textsc{The Argument from Mystery}, given that the Patchwork principle in play is one that bans such necessary connections? In other words, why think that any necessity-attributing proposition which reports \textit{that} sort of necessary connection would have to be brute?

The first thing I’d say is that when one considers an arbitrary putative case of such a necessity-attributing proposition, it seems true that it would have to be brute. If there could exist a donkey body and there could exist a human head but there couldn’t be a human head \textit{exactly three feet from} a human body, would a proposition expressing that fact be a brute necessity-attributing proposition? It would seem so.

But I think more can be said, and Lewis’s remarks cited above (§3.2.1) say what’s more:

\begin{quote}
It’s one thing for the particle to be charged, another thing for two particles to be at a certain distance – the common involvement of the same particle is not enough to make the alleged connection intelligible
\end{quote}

The idea is that geometrical relations between sequences are one thing and their

\textsuperscript{50}But won’t that fact, if it is a fact, undermine our assumption that \textbf{existence} is a basic intrinsic property? And if so, why think that Patchwork should come along with a “and nothing else” clause in the first place? Fair questions: my answer is that if that is a fact, then we ought to modify the definition of ‘basic intrinsic property’ so that it allows a basic intrinsic property to be instantiated in virtue of its members (constituents) even if those aren’t strictly speaking parts of the bearer.
intrinsic characters are an entirely different thing. As long as a certain spatiotemporal arrangement $\Phi$ is possible – that is, as long as some things could be in that arrangement – there doesn’t seem to be anything common to geometrical relations and intrinsic natures in terms of which one could explain an absolute ban on instances of certain intrinsic natures standing in $\Phi$. (The proviso that “size and shape of spacetime permits” is meant to ensure that the spatiotemporal arrangement is indeed possible. For all I know – and for all Lewis knows – the proviso may be satisfied by any spatiotemporal arrangement whatsoever. But better to include it just in case it isn’t.)

Of course, the intrinsic geometrical relations which are entailed by a given intrinsic nature, like size and shape (if those are indeed intrinsic) do place intelligible (non-brute) constraints on which intrinsic natures can have instances that exactly occupy a certain region: on a somewhat standard analysis of ‘exact occupation’, what it is to say that something exactly occupies a certain region is to say that it occupies the region and has the same intrinsic spatiotemporal properties as the region.\(^{51}\) Hence the condition, set out in Patchwork, that a spatiotemporal arrangement has to fit the relevant intrinsic natures. But any restriction on the spatiotemporal relations between sequences would have to be brute; and so (according to the first premise) there couldn’t be any such restrictions.

What about my extension (§1.6) of the notion of a spatiotemporal arrangement to include a specification of which parts of (elements of) the arranged sequences are identical with which others (what I earlier called a ‘mereological arrangement’)? Why does The Argument from Mystery deliver a principle that guarantees the possibility of instances of arbitrary intrinsic natures standing in any spatiotemporal arrangement, when ‘spatiotemporal arrangement’ is understood in that extended

\(^{51}\)See Gilmore (, 179 ff.) who says that at the very least a necessary condition for $O$ to exactly occupy a spacetime region $R$ is that $O$ has (or has-at-$R$), the same shape and size as $R$. 

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way? Well, for the sake of definiteness, suppose there is a maximal basic intrinsic property – **Thing 1** – one of whose conjuncts is the following relation:

**being a two-membered sequence whose first member instantiates the maximal basic intrinsic property \( \alpha \) and whose second member instantiates the maximal basic intrinsic property \( \beta \) and whose members stand in (the basic intrinsic) relation \( R_1 \)**

And suppose further there is a maximal basic intrinsic property – **Thing 2** – one of whose conjuncts is the following relation:

**being a two-membered sequence whose first member instantiates the maximal basic intrinsic property \( \beta \) and whose second member instantiates the maximal basic intrinsic property \( \gamma \) and whose members stand in (the basic intrinsic) relation \( R_2 \)**

And now consider whether the following necessity-attributing proposition (supposing it is true) would have to be brute: it’s not possible for there to be an instance of **Thing 1** and an instance of **Thing 2** which overlap on the former’s second member and the latter’s first member; that is, it’s not possible for there to be two sequences, one which is an instance of **Thing 1** and one which is an instance of **Thing 2**, which *share* a member. If our piece of anthropomorphic reasoning is a good indication, the answer is “yes, it would seem that would have to be brute.”

For consider three people, Alfred, Betty, and Carlos, all of whom are making choices. Some of those choices are made individually: among those individual choices, there are those that are influenced by the choices of other individuals (the instantiation of non-basic-intrinsic properties) and those that aren’t (the instantiation of basic intrinsic properties). Some of the choices, on the other hand, are made in pairs (dyadic relations): among those choices made in pairs, there are those that are influenced by the choices of others (the instantiation of non-basic-intrinsic relations) and those that aren’t (the instantiation of basic intrinsic relations). Now, say they go about making all the uninfluenced individual choices first: Alfred, Betty, and Carlos each completely settle all such wholly personal matters. Then, the next
order of business is to make uninfluenced pair-choices. Alfred and Betty have some choices to make together, and so do Betty and Carlos (Alfred and Carlos too, but to simplify the discussion, I will leave them out for now). Now, some of the choices each pair has to make won’t really be left to make, since they will be settled by the individual choices made at the first stage: these are the choices that correspond to instantiations of intrinsic relations that are not just intrinsic, but (in Lewis’s terms) internal as well.\textsuperscript{52} There can be no restriction on the possible combinations of those pair-choices – that is, those pair-choices that are consistent with (indeed, entailed by) the individual choices already made – as long as there couldn’t be any restriction on the combinations of individual choices to begin with. (And that there can’t be any absolute restriction on the combinations of individual choices was the essence of my argument for an unextended Patchwork.)

And with respect to those pair-choices that remain to be made (corresponding to the external intrinsic relations), the ones made by Alfred and Betty are independent of the ones made by Betty and Carlos: they don’t depend on one another, and moreover, they don’t depend on any common source. After all, the choices in question are, on the one hand, uninfluenced choices (they correspond to the instantiation of intrinsic relations) so they don’t depend on one another, and on the other hand, they are not settled by the choices made by the individuals, so the fact that Betty is involved in both choices would do nothing to explain them. So if there were some absolute restriction on how the two pairs made those choices, it would have to be brute.

I hope it is clear how the story about Alfred, Betty, and Carlos justifies my assertion that the necessity-attributing proposition about \textbf{Thing 1} and \textbf{Thing 2} would have to be brute (supposing it’s true), and so justifies the second premise. But one feature of the story I told should be brought to the fore, since it delivers the final proviso. As I noted in discussing the choices that correspond to \textit{internal} relations,

\textsuperscript{52}Lewis 1986b, 176.
any combination of pair-choices available to {Alfred, Betty} and {Betty, Carlos} is possible, as long as those choices are consistent with the individual choices already made. Suppose, for example, the sole individual choice each of the three can make is to choose an integer (any integer), and that one of the choices to be made by a pair is the product of their individual choices: if Alfred chooses four and Betty chooses seven, then their choice of the product is of course settled: it’s twenty-eight. Now, while it’s possible for the pair {Alfred, Betty} to choose (as their product) ten and it’s possible for the pair {Betty, Carlos} to choose (as their product) zero and it’s possible for the pair {Alfred, Carlos} to choose (as their product) six, it’s not possible for all those pairs to make all those choices: for Betty or Carlos must have made the individual choice of zero if their product choice was zero, but then it couldn’t be that the product choices of {Alfred, Betty} and {Alfred, Carlos} were both non-zero! The lesson for Patchwork is clear: any arrangement of instances of intrinsic natures is possible, including ones in which those instances overlap, as long as the overlapping intrinsic natures ‘say the same thing’ about the character of any part their instances share.

Hence the proviso in Patchwork that for a certain spatiotemporal (and mereological) arrangement of instances of certain intrinsic natures to be guaranteed possible, it needs to be the case that if there were such instances in that arrangement, then it would be the case that for any \(x\) and \(y\), if \(x\) is a part of (an element of) one of the instances and \(y\) is a part of (an element of) another of the instances and \(x = y\), then for any intrinsic natures \(Q_x\) and \(Q_y\), \(x\) has \(Q_x\) and \(y\) has \(Q_y\) only if \(Q_x\) and \(Q_y\) are compatible.

My defense of Patchwork rests.
In the previous chapter, I offered an argument for Patchwork, an argument which seems to me as compelling as arguments get in this area. The trouble is that Patchwork apparently has implications that are untenable. As I argued in §2.3.2, Patchwork apparently implies that causal, nomic, and temporal-direction relations are extrinsic and always extrinsic to their bearers. This robs the world of much of the intrinsic structure we might have thought it had. And it robs the world of some of the intrinsic structure that it must have in order for there to be conscious beings like ourselves.

More exactly, conscious being like ourselves instantiate phenomenal properties, properties that say how things seem to their bearers. And those properties are intrinsic: no intrinsic duplicate of me could differ from me with respect to how things seem to us. But, I argue, some of those phenomenal properties impose causal and/or temporal-direction constraints. That is, roughly, for some phenomenal property \( P \), certain causal or temporal-direction relations have to hold between temporal parts of any conscious subject that instantiates \( P \). But then those relations will have to hold between temporal parts of any possible intrinsic duplicate of any conscious subject that instantiates \( P \). So they are not always extrinsic after all.\(^1\) This, in a nutshell, is the argument of this chapter. Or, the arguments of this chapter, since there are two of them: one for causal relations and one for temporal-direction relations. They too seem to me as compelling as arguments get in this area. Of course that will leave us

\(^1\)See Hawthorne (2004) for a similar line of argument, restricted to the case of causal relations. See also Wasserman (2005) and Hawley (2005).
in a real bind, since we will have a pair of compelling arguments for a conclusion that is apparently inconsistent with the conclusion of another compelling argument. But confronting that conundrum will have to wait until the next chapter. In this chapter, I will flesh out the arguments I just sketched.

4.1 Phenomenal Properties are Intrinsic

The first premise of both arguments is this:

**Phenomenal Internalism**: All phenomenal properties are intrinsic.

Although I have spent a fair amount of space trying to explain what ‘intrinsic’ means, it might not be entirely clear what this claim amounts to if it’s not entirely clear what I mean by ‘phenomenal property’. You might wonder: what is a phenomenal property, anyway? Well, as I said, it’s a property that says how things seem to its bearer. Here are some examples: having an itch, sensing a faint garlic odor, hearing a loud boom, and feeling dizzy. If what’s wanted is a more precise characterization of the notion, I would like to say this:

‘\( P \) is a phenomenal property’ =df \( P \) entails the property being conscious

That is, a property is phenomenal just in case, necessarily, anything that has that property is conscious.

Although I would like to say this, it isn’t quite right. Too many properties would count as phenomenal. The property being conscious would itself count as phenomenal, as would all impossible properties – like being conscious and having no phenomenal properties at all – and neither of those results seems right.\(^2\) More importantly, properties with all kinds of “extraneous information” built in would count as phenomenal. For example, the property willingly breaking the law seems to entail being

\(^2\)Thanks to Peter van Inwagen for pointing out the consequence about impossible properties.
conscious, but doesn’t seem to be a phenomenal property; more artificially but more
obviously problematic, the property being conscious and the last one to arrive at
the party obviously entails being conscious but is not, I would think, a phenomenal
property. Even more to the point, those latter properties are not intrinsic, contrary
to the first premise of my argument. The trouble with all these properties is that
they are not ways of being conscious, even if they entail the property being conscious.

This is a familiar problem. When trying to define the term ‘P is a determinate of
Q’, a natural thought is to do so in terms of entailment; that is, to say this:

‘P is a determinate of Q’ =_{df} P entails Q

But that isn’t right: I should think that being red entails being shaped, but the former
is not a determinate of the latter. The trouble is that being red is not a particular
way of being shaped: it’s a particular way of being colored. And if you think that
necessarily co-extensive properties are identical and that being shaped is necessarily
co-extensive with being colored, so that they are the very same property, other coun-
terexamples still abound: being red and round, for example, is not a determinate of
being shaped (or being colored, if that’s a different property), even though it entails
it. Entailment of a property is necessary but not sufficient for being a determinate
of that property.

Coming up with a helpful and satisfactory definition of ‘P is a determinate of Q’
is no trivial task.\footnote{See Searle (1967) and Funkhouser (2006). (I don’t find Funkhouser’s proposed definition at the
deend of his §2.3 particularly helpful: his definiens contains the term ‘determination dimensions’, a
term which seems to me intelligible only to one who already grasps the definiendum.)

One is tempted to proceed in the following way. First, say what it is for a set of properties to
be a set of determinates of a property P:

‘Set S is a set of determinates of P’ =_{df}

1. Every member of S entails P
2. All the members of S are pairwise-incompatible
3. Necessarily, anything that has P has one of the members of S}
But hopefully it is well-enough understood so that I can offer the following helpful and satisfactory definition of ‘phenomenal property’ in terms of it:

\[
\textit{\text{P} is a phenomenal property'} =_{df} \textit{P is a determinate of the property being conscious}
\]

This seems right: the phenomenal properties stand in the same kind of structural relation to the property being conscious as the specific color properties do to the property being colored and the specific shape properties do to the property being shaped. Anything that has a particular phenomenal property has the property being conscious; anything that’s conscious has some phenomenal property or other – one can’t be conscious and not have some more specific phenomenal property; and the phenomenal properties form a hierarchy: just as redness is a determinate of being colored, but it in turn has determinates like being scarlet and being crimson, the phenomenal property having a pain, for example, is a determinate of being conscious but it in turn has determinates, like having a sharp pain and having a dull pain. Conversely, nothing other than a phenomenal property seems to be a determinate of being conscious, or of any phenomenal property. (If a non-phenomenal property were a determinate of a phenomenal property, then since the ‘determinate of’ relation is transitive, my definition would have the implication that the non-phenomenal property is a determinate of being conscious, and hence, according to my definition, a phenomenal property after all.) No other property captures a way of being conscious.  

Then say ‘P is a determinate of Q’ =_{df} P is a member of some set of determinates of Q.

But this proposal fares no better: it still turns out, on this definition, that being red and round is a determinate of being shaped. I suspect that the notion of naturalness would be helpful, and perhaps indispensable, in defining ‘determinate’.

Here I find myself in disagreement with Yablo (2002), who holds the view that properties which specify how a certain conscious episode is physically realized are determinates of such mental properties as being in pain.

Also, I realize that on Ned Block’s view (1995; 2002) there are several different sorts of consciousness – most prominently, phenomenal consciousness and access consciousness – and that if he’s right, my suggested definition needs to be amended so that the definiens reads “P is a determinate of the property being phenomenally conscious”. This amendment would make my definition less useful.
I hope that through some combination of my intuitive characterization of the notion of a *phenomenal property*, enumeration of examples of phenomenal properties, and definition of ‘phenomenal property’ in terms of ‘determinate’, I have made clear enough what I mean by ‘phenomenal property’. And now it should be clear enough what Phenomenal Internalism comes to. It says that for any phenomenal property \( P \) – for any property that specifies a way of being conscious – no two possible intrinsic duplicates could differ with respect to whether they instantiate \( P \). This premise strikes me as so obviously true that it needs no defense. As Hawthorne says about a closely related premise,

> While one might try to argue for the premise – say, by maintaining that we have privileged access to our conscious life and that such privileged access would not be possible unless Premise One were true – any such argument seems doomed to rely on assumptions more controversial than the conclusion it seeks to establish. (2004)

Even Dretske, who in the end rejects Phenomenal Internalism, has this to say:

> Arguments have to stop someplace, and this seems as good a resting point as any. I confess to myself feeling the pull of the Internalist Intuition. (1995, 150–1)

But as Tyler Burge (1997) points out, if there were a “zombie” that had access consciousness (it was access-conscious) but not phenomenal consciousness (it wasn’t phenomenally conscious), then we wouldn’t say it was conscious at all. The clear implication is that Block’s so-called access consciousness is not a kind of consciousness at all, and that *being conscious just is being phenomenally conscious*. (Block’s (2002) reply to Burge’s argument seems not to the point: he agrees with Burge’s claim about whether such a being would be conscious, but he doesn’t agree with the conclusion “that some have drawn that the A-sense is not a sense of “consciousness” and that A is not a kind of consciousness. A-consciousness can be a kind of consciousness even if it is parasitic on a core notion of P-consciousness. A parquet floor is a floor even though it requires another floor beneath it.” Yes, a parquet floor is a floor; but it’s also true that if there were a parquet floor without a floor beneath it, it would still be a floor. Access-consciousness can’t be a sort of consciousness if it’s possible for something to be access-conscious and fail to be conscious.)
So I will not argue for Phenomenal Internalism. But I will do two things to reinforce its intuitive appeal: (A) distinguish it from more controversial claim with which it might be confused, and (B) reply to two objections.

First, the possible confusion. Michael Tye (2009) argues for a thesis he calls ‘Phenomenal Externalism’, which “is the doctrine that it is metaphysically possible for intrinsic duplicates to differ with respect to the phenomenal character of their internal states.” I assume that two beings differ with respect to the phenomenal character of their internal states just in the case that they do not share all the same phenomenal properties. If I’m right to assume that, then Phenomenal Externalism is indeed inconsistent with Phenomenal Internalism. But in going on to defend his claim, Tye’s target seems to move: instead of arguing for Phenomenal Externalism, he argues for the claim that two possible physical intrinsic duplicates might well differ with respect to the phenomenal character of their internal states (and hence, I would assume, their phenomenal properties). But that claim is very different from Phenomenal Externalism: while I think Phenomenal Externalism is obviously false, I don’t think that latter claim is obviously false. That latter claim implies Phenomenal Externalism – or, equivalently, the denial of Phenomenal Externalism implies the denial of the latter claim – only if any two possible physical intrinsic duplicates are intrinsic duplicates, period. So the lesson is this: we should not confuse my first

\[5\text{And I will explicitly disavow two of the three arguments Dretske (1995) considers on its behalf: I do not think it’s true because otherwise phenomenal properties would be epiphenomenal, and I do not think it’s true because I subscribe to a sense-datum theory of sense experience, according to which one experiences by being directly aware of an immaterial object internal to one. The latter argument is not very strong because it has a false premise, and the former argument, while having a fair amount of force, seems to establish internalism about all mental states, which seems false.}\]

\[6\text{I also assume that he means that there are possible intrinsic duplicates that differ phenomenally, not necessarily that they inhabit the same possible world; or at least that’s how I’ll use the term ‘Phenomenal Externalism’.}\]

\[7\text{Where ‘}x\text{ and }y\text{ are physical intrinsic duplicates’ }=_{df}\text{ for any intrinsic physical property }P, x\text{ has }P\text{ iff }y\text{ has }P.\text{ On the question of what it means to say ‘}P\text{ is a (non-)physical property’, and whether it means anything at all, see van Inwagen (2011).}\]
premise with a verdict on the question of whether physical intrinsic duplicates can
differ with respect to their phenomenal properties.

4.1.1 Objection: Billy and Billy-Minus

However, clearing up this confusion might suggest to us an objection to Phenomenal Internalism that is based on the following two premises:

1. Necessarily, any two physical intrinsic duplicates are intrinsic duplicates, period
2. Possibly, two physical intrinsic duplicates differ with respect to their phenomenal properties.

And it follows from (1) and (2) that it’s possible for intrinsic duplicates to differ with respect to their phenomenal properties; and so Phenomenal Internalism isn’t true after all.

The best argument along these lines of which I am aware defends (2) based on the possibility of the following sort of case: two conscious people, Willy and Billy, are exactly alike except for the fact that Willy has no right hand and Billy does. Billy has a proper part, Billy-Minus, which is exactly like Willy in all physical respects – they are physical intrinsic duplicates. And yet, since Billy is conscious, Billy-Minus isn’t. If conscious beings always came together like that, there’d be many more conscious beings in your chair than you thought! So although Billy-Minus and Willy are physical intrinsic duplicates, they differ phenomenally: one of them dreams and feels and loves and the other one is as foreign to conscious awareness as a doorknob. As long as that is indeed possible, then (2) is established.  

As Sider (2003) says, the first premise is most plausible when the modal operator is construed in a restricted way, as saying (assuming a possible worlds interpretation) that in all possible worlds in the “inner sphere” – where those are worlds in which every instantiated natural property or relation is instantiated in the actual world – any two physical intrinsic duplicates are intrinsic duplicates period. So it is important that the story involving Billy-Minus and Willy is not only possible, but a possibility in the inner sphere.
What do I say about this argument? Well, I say that the falsity of its conclusion is more obvious – far more obvious – than the truth of its two premises. I’m agnostic about which of the premises is false. Merricks (1998a) makes use of a very similar argument, “running in the other direction,” to show that (1) is false.\(^9\) I am inclined to agree with Merricks that premise (1) is the weaker of the two. But I have some doubts about (2) as well. One might hold that the situation involving Billy and Willy is not really possible because there is no such thing as Billy-Minus. That is, there just isn’t anything that we might ordinarily say (I don’t know in what context) is “all of Billy except his right hand”.\(^{10}\) Perhaps. At any rate, what I am certain of is that either (1) or (2) is false.

On the face of it, Ted Sider (2003) disagrees with my assessment of the dialectical situation and hence with my view on Phenomenal Internalism. He appears to assume that (1) and (2) are true, and therefore to conclude that Phenomenal Internalism is false.\(^{11}\) And Sider explains why Phenomenal Internalism is false. It’s because **being conscious** is, like **being a rock** and **being a house**, a border-sensitive property: whether it’s instantiated by something depends (in part) on what’s going on around the thing’s borders, and so it’s not instantiated wholly in virtue of how its bearer and its bearer’s parts are. The large proper part of my house which has all my house-

\(^9\)The slight difference between the two arguments – aside from running in opposite directions – is that Merricks assumes, based on a Willy/Billy/Billy-Minus case, that it is possible for two physical intrinsic duplicates to differ with respect to **being conscious** (a slightly stronger assumption than (2)) and that **being conscious** is an intrinsic property (a slightly weaker assumption than the denial of my argument’s conclusion).

\(^{10}\)This is the conclusion that Olson (1995) draws from the same argument “running in the other direction.” Truth be told, Merricks also allows that for these reasons, (2) might be false rather than (1).

Earlier, van Inwagen (1981) adduced independent considerations – considerations that have nothing obviously to do with consciousness – that support the same conclusion.

\(^{11}\)Again, as in nt. 9, Sider’s argument actually involves a premise stronger than (2), namely that it’s possible for two physical intrinsic duplicates to differ with respect to the property **being conscious**, and correspondingly his conclusion is that **being conscious** is not intrinsic, which is a claim that is stronger than the denial of Phenomenal Internalism.
parts as parts except for the front door is not itself a house because of what’s going on outside its borders: it has a door stuck to it, a door which is such that it and that large proper part compose a house. And the same goes, Sider says, for being conscious. Billy-Minus is not himself conscious because of what’s going on outside his borders: he has a hand stuck to him, a hand which is such that it and Billy-Minus compose something conscious. Or so Sider says.

If Sider and I have a substantive disagreement about Phenomenal Internalism, then so be it. But I don’t think we do: the difference, as far as I can tell, is merely terminological. Sider asks what evidence or reason we have to think that Billy-Minus is not conscious. He notes that Billy-Minus “talks” and “behaves” exactly like Billy and even shares Billy’s brain. So why do we think that Billy-Minus isn’t conscious? Sider’s answer is that it’s a conceptual truth “that something counts as conscious (or, as a conscious being) only if it’s the “largest” conscious thing in the vicinity.” That is, the property we express with the predicates ‘x is conscious’ and ‘x is a conscious being’ is one that is maximal. Now, we might suppose that’s so. (I don’t think it is so; I’m not sure what our evidence is for the claim that there aren’t a legion of conscious beings in my chair, but I’m also not sure we need evidence.) But the fact that the properties we happen to pick out work that way seems entirely irrelevant to the issue of whether larg-ish proper parts of conscious beings can be anything like conscious. How could our classificatory practices, and the workings of our concepts, have any bearing on the substantive question of whether there could be something such that (a) there’s something it’s like to be that thing and (b) it has as a larg-ish proper part something such that there’s something it’s like to be that thing? Perhaps surprisingly, Sider agrees that the answer is that they can’t. Here is what he says:

Merricks is right, however, that it would be bizarre to claim that a single atom could make a difference as to whether a thing is anything like conscious. Surely a single atom cannot make a difference between the full range of conscious experiences I enjoy and having the consciousness
of a doorknob! But this is all consistent with consciousness being maximal and extrinsic. Although Martha-minus isn’t literally conscious, she has what it takes intrinsically to be conscious. In particular, she has a working brain. All that disqualifies her from consciousness is a seeming “technicality”: the failure of the maximality condition. We can introduce the property of “consciousness*”, which is shared by Martha-minus and Mary alike, which a thing has in virtue of having all that is required, intrinsically, for consciousness. Consciousness* is consciousness stripped of any maximality requirement. (10)

If I understand Sider correctly, he thinks something like the following: our predicates “x is conscious” and “x is a conscious being” express a property that is equivalent to a conjunction of two properties, one which says of its bearer that there is something it’s like to be that thing (it instantiates consciousness*), and the other of which says of its bearer that it satisfies some maximality condition (roughly, it is the largest conscious* thing in the vicinity). And the same goes for all phenomenal properties, like being in pain: it is equivalent to a conjunction of two properties, one which says of its bearer that it is in pain* and the other of which says of its bearer that it satisfies some maximality condition. Corresponding to every extrinsic phenomenal property then, there is an intrinsic phenomenal* property.12

So while Sider would say that the sentence, “All phenomenal properties are intrinsic” expresses a falsehood, he would agree that the sentence, “All phenomenal* properties are intrinsic” expresses a truth. And I agree with him that the proposition he believes we express with the sentence “All phenomenal properties are intrinsic” is false: I just think the proposition we express with that sentence is the very same proposition as the one he thinks we express with the sentence “All phenomenal* properties are intrinsic.” Thus, our spat is over meanings, not metaphysics. If I’d

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12What does Sider say about an argument just like the above except that it replaces (2) with (2’): Possibly, two physical intrinsic duplicates differ with respect to their phenomenal* properties? He says that the argument is unsound because (2’) is false; he thinks Billy-Minus and Willy are phenomenal* duplicates. And of course that means that the conscious* beings in your chair are legion! Merricks (2001) claims this is objectionable and Sider (2003) disagrees. I do not need to take sides on that question.
learn that his semantic claim is correct, I’d just replace my first premise with the following:

**Phenomenal* Internalism**: All phenomenal* properties are intrinsic.

And the rest of my argument would be unaffected. But since I have not yet learned that Sider’s semantic claim is correct, I’ll keep to the unadorned version of the premise.

4.1.2 Objection: Externalism About Content

A second objection to Phenomenal Internalism is more direct. Some philosophers, like Fred Dretske (1995; 1996), Michael Tye (2009) and William Lycan (2001), argue along the following lines: we are by now familiar with *externalism about the contents of propositional attitudes*. This is the claim that thoughts, beliefs, desires, and other propositional attitudes can have content that is in part determined by facts about the constitution of things or stuffs that are external to the person who has that attitude. Thus, two possible intrinsic duplicates might differ with respect to the content of their beliefs merely because one of them lives on Earth, which has lots of water, and the other lives on Twin Earth, which has lots of twater instead, where twater is made of XYZ rather than H₂O (Stich 1978).¹³ (This seems to me an ill-chosen example to make the point about intrinsic duplicates, since there is water *internal* to all cognizers who live on Earth – at least all such cognizers who are organisms – and so any possible intrinsic duplicate of an Earth-inhabiting cognizer will be such that there is water. But it’s the example that is most familiar, so I will continue to use it.) And (they claim) the same goes for experiential states (experiences, for short), or for what we might call *externalism about the contents of experiences*. That is, (at least some) experiences have content and that the content of some experiences is

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¹³The earlier Putnam (1975) argues for externalism about the meaning of linguistic expressions, rather than about the content of mental states.
determined in part by facts about the constitution of things or stuffs that are external to the experiencer (Block 1990). So two possible intrinsic duplicates might differ with respect to the content of their experiences, merely because one of them lives on Earth, which has lots of water, and the other one lives on Twin Earth, which has lots of twater instead. But finally, they argue, this implies that two possible intrinsic duplicates might differ with respect to what it’s like to be them, what it’s like to undergo their respective experiences: or, in our terms, with respect to their phenomenal properties. So not all phenomenal properties are intrinsic after all.

I am willing to grant that two possible intrinsic duplicates might differ with respect to the content of their experiences, merely because one of them lives on Earth, which has lots of water, and the other one lives on Twin Earth, which has lots of twater instead. But I don’t see how that is supposed to imply that two possible intrinsic duplicates might differ with respect to their phenomenal properties. The implication would of course hold if the following strong local supervenience claim were true: any two possible phenomenal duplicates are experiential content duplicates. (Let’s say that ‘property P is an experiential content property’ =df P is a property which can be expressed by a predicate of the form ‘having a (visual, auditory, etc.) experience whose content is C’; and then let’s say ‘x and y are experiential content duplicates’ =df for any experiential content property P, x has P iff y has P.) That is, two subjects can’t differ in the content of their experiences – even so-called wide content – if there’s no difference in what it’s like to be them. Indeed, those philosophers endorse that supervenience claim. But why should anyone else agree? As Kim (1996) points out

14 As I noted earlier (nt. 18), some have expressed skepticism about the claim that experiences have content. See Speaks (2011, 340 ff.).

15 There might be other reasons as well. Dretske (1995) holds that the reason two possible intrinsic duplicates might differ with respect to the content of their experiences is that they have different evolutionary histories – and hence their sensory systems were “designed” differently, and hence carry different information – rather than that they happen to find themselves at present in different environments.
and Dretske (1996) concedes, this is certainly not the natural view of things: ever since Twin Earth was discovered, philosophers have assumed as a matter of course that what it’s like to be me is exactly what it’s like to be my Twin-Earth-counterpart. That’s precisely why I couldn’t tell (without conducting some experiments) if I was abruptly transported from Earth to Twin-Earth!

In order to see just how strong that supervenience claim is, it might be helpful to notice the following: Dretske (1995), Tye (2009), and Lycan (2001), are all contributing to a lively philosophical programme, going by the name ‘Representationalism’, that seeks to reduce phenomenal properties to experiential content properties. That is, Representationalism is the thesis is that every phenomenal property is an experiential content property. (Or, so I understand it.) That thesis is difficult to argue for, and even harder to defend against objections. But contrary to the impression they give, even if they could successfully establish Representationalism, that would not suffice, or even so much as suggest, the supervenience claim that is needed to argue for the falsity of Phenomenal Internalism.

Of course, if they could establish the converse of Representationalism – that every experiential content property is a phenomenal property – then that would indeed suffice to establish the supervenience thesis. But once we become convinced that experiences can have wide content – and so one experiencer might have the property, having a tactile experience whose content is that there is H$_2$O in the lakes, and another experiencer might have the property having a tactile experience whose content is that there is XYZ in the lakes – then the converse of Representationalism becomes very implausible, and thus very difficult to establish. Whatever phenomenal property would be identical with the former experiential content property would, it seems clear, be identical with the latter as well; but then the two experiential content properties would be identical with each

\[16\text{See Block (1996) for trenchant criticisms, and Lycan (2006) for an overview of the literature.}\]
other, and they clearly aren’t!\footnote{If Representationalism is true, then there might be some class of experiential content properties, i.e., the narrow content ones, such that each of its members is a phenomenal property. Indeed, most Representationalists hold that the phenomenal properties just are the experiential narrow-content properties. (Where ‘experiential narrow-content property’ is defined in the natural way.) See Lycan (2006, §2.2). But that would be of no help in establishing the supervenience thesis that they need to undermine Phenomenal Internalism. (Of course, it would establish a supervenience thesis, namely the supervenience of experiential narrow-content properties on phenomenal properties.)

On Dretske’s (1995) view that I mentioned in nt. 15, intrinsic duplicates can differ even with respect to their experiential narrow-content properties, if they have a different evolutionary history, or, more generally, a different function: two things might be intrinsic duplicates, where one has a rich array of experiential content properties, and the other one has no such properties at all, because, like Swampman, it has no function at all. And so if every experiential narrow-content property is a phenomenal property, then it indeed follows that intrinsic duplicates can differ with respect to their phenomenal properties. I would make an analogous point in response: once we become convinced (if we do) that even the narrow content of experiences can be determined (not just causally, but necessarily) by the experiencer’s history, then the claim that every experiential narrow-content property is a phenomenal property becomes very implausible, and thus very difficult to establish.

\footnote{I add the parenthetical adverb since, as Dretske points out, there are two different sense of ‘seems’, a phenomenal and a doxastic. (He uses ‘seem$_p$’ and ‘seem$_d$’ to express these two notions, respectively.) The former notion is the one we would invoke when expressing a thing’s phenomenal properties, while the latter notion is the same as that of a disposition to believe. Thus, if a child

In any case, not to put too fine a point on it, there simply \emph{is} no good argument for the local supervenience of experiential content – narrow and wide – on phenomenal properties. The best argument of which I am aware is Dretske’s (1996), and it is the following: consider an Earther and a Twin Earther who are each looking at a local lake. Each one, let us suppose, has beliefs about the lake. Dretske notes that some of Earther’s beliefs about the lake will have content that differs from Twin Earther’s beliefs about the lake, simply in virtue of the fact that their lakes contain substances of different chemical composition. For example, the Earther might believe \emph{that there’s alot of water in the lake today} and the Twin Earther might believe \emph{that there’s alot of twater in the lake today}. The Earther can’t even have the latter belief because he doesn’t have the concept \emph{twater}, and vice versa.

Let us suppose, further, that each one has beliefs not only about the lake but also about his phenomenology when looking at the lake, about how the lake seems (phenomenally) to him.\footnote{I add the parenthetical adverb since, as Dretske points out, there are two different sense of ‘seems’, a phenomenal and a doxastic. (He uses ‘seem$_p$’ and ‘seem$_d$’ to express these two notions, respectively.) The former notion is the one we would invoke when expressing a thing’s phenomenal properties, while the latter notion is the same as that of a disposition to believe. Thus, if a child
have content that differs from Twin Earther’s beliefs, simply in virtue of the fact that their lakes contain substances of different chemical composition. For example, the Earther might believe that the liquid in the lake seems watery while the Twin Earther believes that the liquid in the lake seems twatery; the Earther can’t even have the latter belief because he doesn’t have the concept twatery, and vice versa. In our terms, we can say that the Earther and the Twin Earther might differ with respect to the content of some of their beliefs about their own phenomenal properties. Dretske claims that if this is so, then neither the Earther nor the Twin Earther could ever tell, could ever know, that they instantiate all the same phenomenal properties. And so, Dretske says, neither can we. But if we can’t know that, then it at least could, for all we know, be the case that the Earther and Twin Earther differ in their phenomenal properties.

This is not a very impressive argument. There is of course the lack of impressiveness that derives from its weak conclusion: its conclusion implies only that for all we know the required supervenience claim is true, not that it is true. But I will set that aside because its conclusion would be troubling enough for me; it would imply that for all we know, two possible intrinsic duplicates might differ with respect to their phenomenal properties. That is, it would imply that for all we know, Phenomenal Internalism is false. And I think we know that Phenomenal Internalism is true.

More importantly, the argument is unimpressive because it is obviously unsound (or invalid, depending on how exactly one puts the premises). It doesn’t follow from the fact that the Earther and Twin Earther might differ with respect to the content of some of their beliefs about their own phenomenal properties that they could never know that they instantiate all the same phenomenal properties, and that for two reasons. First, it doesn’t follow from the fact that the content of some of their beliefs

who has no concept seven is looking at a diagram with seven dots, the diagram may seemₚ to her to contain seven dots, but it won’t seem₆ to her to contain seven dots. In the remainder of this discussion, I will mean ‘seemsₚ’ by ‘seems’. 
about their own phenomenal properties might differ that the content of all of their beliefs about their own phenomenal properties might differ. Why not think that since they are intrinsic duplicates (by stipulation), each would have to have some beliefs about his own phenomenology when looking at the lake – like the belief that the liquid in the lake seems clear and shiny – with the same content? And why not think that there is enough shared belief-content for each one to tell (to know) that they instantiate all the same phenomenal properties? Two, they don’t need to have any beliefs about their own phenomenology – let alone with the same content – in order to know that they instantiate all the same same phenomenal properties. (That is, any such beliefs other than the belief that they instantiate all the same phenomenal properties.) They could come to know that in the following way: they know that the two of them are intrinsic duplicates, and they know that Phenomenal Internalism is true, from which two pieces of knowledge they deduce that they instantiate all the same phenomenal properties. That seems like a perfectly legitimate way for them to come to know that they instantiate all the same phenomenal properties, and it doesn’t go by way of any specific knowledge of or beliefs about their own phenomenology. And if, for some reason I can’t fathom, they couldn’t come to know or other of the two premises of the deduction, why can’t we? We are told after all, as part of the setup of the case, that they are intrinsic duplicates; and to simply assume that we can’t know that Phenomenal Internalism is true is obviously question-begging in this context: that’s supposed to be a conclusion of the argument, not one of its premises.

Dretske’s argument is obviously unsound, and as I said, it is the best argument of which I am aware for the local supervenience of experiential content – narrow and wide – on phenomenal properties (or for the thesis that the supervenience claim is true for all we know).19 I conclude that there is no good argument for that claim. Since it flies in the face of received wisdom and there is no good argument for it, I don’t

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see why we should accept it. So, I conclude, the second objection to Phenomenal Internalism fails.

4.2 What My Conscious Life Requires

Here is a first approximation of the second premise of the two arguments:

**Causal Constraint (First Approximation):** Some phenomenal properties entail causal relations.

**Temporal Direction Constraint (First Approximation):** Some phenomenal properties entail temporal-direction relations.\textsuperscript{20}

The phenomenal properties I have in mind are ones which for some temporally extended experience (that is, an experience which takes some time to have, which goes on for more than an instant), it specifies what it’s like to have that experience. And the idea is that a being can’t instantiate such phenomenal properties without certain causal relations holding between earlier and later temporal parts, and without those temporal parts being temporally directed in a certain way.

But those claims are only a first approximation of the second premise (of their respective arguments) because I would like to remain neutral on the question of whether certain quirky situations are possible. In particular, I’d like to remain neutral on whether it’s possible for there to be a being that does not persist over time – either

\textsuperscript{20}These claims require some preliminary clarification: what does it mean to say that a (monadic) property entails a (polyadic) relation? In general, one relation entails another relation just in the case that necessarily, any sequence that instantiates the former instantiates the latter. (At least that’s what I mean by talk of relation entailment.) But then what would it mean to say of two relations, one an n-place relation and the other an m-place relation (where n \( \neq m \)), that one entails the other? Nothing at all, at least without further explanation. So allow me to explain what I mean.

As I noted in the Preface (p. xii), I have adopted throughout the dissertation (except when arguing for its metaphysical possibility) the view that ordinary particulars persist through time by having many parts, “temporal parts,” each one of which exists only for a duration that is shorter than the life span of the persisting particular. This view suggests a natural interpretation of what I mean, which is this: for some phenomenal property \( P \) and causal (temporal-direction) relation \( R \), necessarily, anything that instantiates \( P \) has temporal parts that stand in relation \( R \). And indeed, that is what I will mean by my claim that some phenomenal properties entail causal (temporal-direction) relations.
because it is not in time at all, or because it exists for only an instant – but that still has an experience *that seems to it just like* a temporally extended experience, in that what it’s like to undergo one is what it’s like to undergo the other. If such beings are possible, then the phenomenal properties I have in mind can be instantiated by something that has no (proper) temporal parts at all, let alone temporal parts that are related to each other by some causal or temporal-direction relation. What I want to say instead is roughly this: those beings *which have temporally extended experiences* of such-and-such a character must have temporal parts that stand in certain causal/temporal-direction relations.

4.2.1 Argument from Causal Constraints

Indeed, when it comes to Causal Constraint (as opposed to Temporal Direction Constraint), the *character* of the temporally extended experience is irrelevant. What matters is the fact that the being *had* a temporally extended experience, period. Or, better, that it was conscious at more than one time. Let us say that,

\[x \text{ is a continuant} \equiv_d x \text{ is conscious at more than one time}\]

We can then put the Causal Constraint this way:

**Causal Constraint**: For some causal relation \(R\), necessarily, for any continuant \(x\), any sequence \(TP\) whose elements include all of \(x\)’s temporal parts instantiates \(R^{21}\)

Before I go on to defend this claim, let me explain how it, in conjunction with my argument’s first premise, spells trouble for Patchwork.\(^{22}\) Consider some continuant, such as yourself. It follows from Phenomenal Internalism that the property *being*

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\(^{21}\)A causal relation that is guaranteed to do the trick if any causal relation does is the least specific causal relations, viz. **being an** \(x_1, \ldots, x_n\) **such that for some** \(x_i\) **and** \(x_j\), \(x_i\) **caused** \(x_j\).

\(^{22}\)See Hawthorne (2004) for a defense of other causal constraints on a conscious life, and hence other difficulties for the Delocalization of Causation and Patchwork; however, none of those constraints seems as obviously correct as the one I defend here.
conscious is intrinsic.\textsuperscript{23} And it follows from that that the property being a continuant is also intrinsic, the same way it follows from the fact (if it is a fact) that being green is an intrinsic property that the property being polka-dotted green is intrinsic. So, necessarily, every intrinsic duplicate of you also has the property being a continuant. But then from Causal Constraint it follows that for some causal relation $R$, necessarily, for any $x$, if $x$ is an intrinsic duplicate of you, then any sequence $TP$ whose elements are $x$’s temporal parts instantiates $R$. From which it follows that for some causal relation $R$, for any sequence $TP$ whose elements include your (proper and improper) temporal parts, necessarily, any intrinsic duplicate of $TP$ instantiates $R$.\textsuperscript{24} And that flies in the face of the Delocalization of Causation—the claim that no causal relation is ever intrinsic to any possible sequence—which I argued in §2.3.2.3 is entailed by Patchwork.\textsuperscript{25}

So much for the problem: now for a defense of Causal Constraint. It follows from the definition of ‘$x$ is a continuant’ that as a matter of necessity, any continuant exists at more than one time (it can’t well be conscious without existing). So on the account of persistence I am assuming, as a matter of necessity, any continuant has more than one proper temporal part. What remains to be shown is that there is some causal relation in which, as a matter of necessity, those temporal parts stand. (That is, what remains to be shown is that there is some causal relation such that,

\textsuperscript{23}Although being conscious is not itself a phenomenal property, since it’s not a determinate of itself, it does still follow from Phenomenal Internalism that it is intrinsic. For suppose it weren’t. Then two possible intrinsic duplicates differ with respect to whether they instantiate being conscious; but necessarily, anything that is conscious has some phenomenal property or other (just like everything that is colored has some more determinate color property), and anything that is not conscious has no phenomenal properties at all. So the two possible intrinsic duplicates would differ with respect to some phenomenal property, which is precluded by Phenomenal Internalism.

\textsuperscript{24}The claim that this follows relies on the following assumption: any possible intrinsic duplicate of a sequence whose elements include $x$ and all of $x$’s spatial/temporal parts is a sequence whose elements include something $y$, which is an intrinsic duplicate of $x$, and all of $y$’s spatial/temporal parts.

\textsuperscript{25}I will address the objection that this conclusion doesn’t fly in the face of the Delocalization of Causation since it might be that any such sequence/relation pair is causally innocent.
as a matter of necessity, for any continuant, there are some things that (a) are all proper temporal parts of that continuant and (b) stand in that relation.

Lewis (1983c) introduces the term “I-relation” to mean “the relation that holds between the several stages of a single continuant person”. He then asks: with what relations is the I-relation necessarily coextensive? (Of course, there’s at least one easy answer, i.e. the I-relation itself. We’re interested in other relations with which it is necessarily coextensive.) Lewis, along with many others, answers that it is a relation of continuity or connectedness, where both of those involve relations of causal dependence. As he notes, the details are very much open to debate (continuity or connectedness? of the mental or physical sort? if mental, how narrowly should that be construed?), but the rough outline of that answer is accepted by many. Now, if their answer is right, then Causal Constraint is clearly true. If as a matter of necessity, every continuant has proper temporal parts, and as a matter of necessity, things are proper temporal parts of some continuant iff they stand in some causal relation, then as a matter of necessity, for every continuant, there are some things that (a) are all proper parts of that continuant and (b) are such that there is a causal relation \( R \) in which they stand. But then there is some causal relation – the least specific causal relation – such that as a matter of necessity, for any continuant, there are some things that (a) are all proper temporal parts of that continuant and (b) stand in that relation.

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26 That is, it is the I-relation is the relation being a sequence whose elements are all proper temporal parts of a continuant.

27 On Lewis’s view, if relations \( R_1 \) and \( R_2 \) are necessarily coextensive, then \( R_1 = R_2 \), and so the answer to the question I’ve raised is “There are none”. The way he really asks the question is this: with what locutions can we express the I-relation? And again, there’s at least one easy answer, i.e. “the relation that holds between the several stages of a single continuant person”. We’re interested in other ways to express the I-relation.

But I want to emphasize that even if their answer is wrong, Causal Constraint might well be true. For even if the I-relation is not necessarily coextensive with the causal relation they pointed to – even if it is not necessarily coextensive with any other relation that can expressed by a finite string of English words – it might still be necessarily coextensive with some, perhaps gruesomely complex, causal relation. Remember, causal relations “come cheap”; any relation that entails a causal relation is itself a causal relation, even if it entails all sorts of non-causal relations. So it might be that causation is a necessary ingredient in the recipe for making a continuant, even if it is not a sufficient one, and if it is, then Causal Constraint is true.

And it is extremely plausible that causation is indeed a necessary ingredient. For consider the following thought-experiment, from Armstrong (1980): a hapless person is, as we might say, annihilated by some wizard. By sheer coincidence, another wizard immediately produces a person at the very same place, and the second person at his inception is qualitatively identical with the first at his annihilation. Should we think that the two people are parts of a single continuant? Is there some person who has been conscious all through the whole ordeal? Or was it “lights out” for one person and “lights on” for another? It seems that the latter option is clearly the right one. The first wizard “turned off the lights” for one fellow and the second wizard “turned on the lights” for another. The sum of the first person and the second – if there

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29 For a view according to which the I-relation is not necessarily coextensive with any other relation that can be expressed by a finite string of English words, see Merricks (1998b).

30 It is an interesting question what it means to say of something that it was annihilated – not just that it was blown to bits, but annihilated – according to the view about persistence that I am assuming. On that view, after all, nothing endures anyway (in the sense of being “wholly present” at more than one time), so annihilating x at t can’t consist in acting in such a way that neither x nor any of x’s parts endures past t; perhaps we should say this: annihilating x at t consists in acting in such a way that neither x nor any of x’s parts is causally related to anything that exists after t. I suspect this will have to be modified to deal with counterexamples (could it’s a wizard annihilate something, and then produce something else because, say, the first thing made such a wonderful impression on him?), but it will do for now.

is such a thing – is not conscious at all, let alone conscious at more than one time. So spatiotemporal continuity and qualitative similarity are clearly not sufficient for being a continuant. And one thing that’s importantly absent is a relation of causal dependence: the person produced by the second wizard is not causally related to the person annihilated by the first.\textsuperscript{32} This strongly suggests that causation is a necessary ingredient in the recipe for making a continuant. In other words, it strongly suggests that Causal Constraint is true.

This completes my first argument, \textit{The Argument from Causal Constraints}, for the falsity of Patchwork. Before I move on to my second argument, \textit{The Argument from Temporal Direction Constraints}, I want to address a couple of objections.

\textbf{4.2.1.1 Objection: A Simpler Argument}

One might wonder why I need to assume Phenomenal Internalism in order to offer an argument along the lines of \textit{The Argument from Causal Constraints}. Why not just argue based on the assumption that the I-relation itself is an intrinsic relation? That is, why not argue in the following way: the I-relation is an intrinsic relation, but it is a (perhaps gruesomely complex) causal relation. So there is an intrinsic causal relation after all. Indeed, Ryan Wasserman (2005) argues along just these lines.

The reason I didn’t argue along those lines is that it’s just not obvious that the I-relation is intrinsic.\textsuperscript{33} Robert Nozick (1981) famously denies it: he holds that

\textsuperscript{32}He was annihilated after all. See nt. 30

\textsuperscript{33}Wasserman in fact concedes it’s strictly speaking false that the I-relation is intrinsic, based on cases like Willy and Billy-Minus (§4.1.1), and so he relies instead on the weaker assumption that the I-relation isn’t \textit{wildly} extrinsic, in that the instantiation of the I-relation never depends on the properties of an object that is distant and disconnected from the things that stand in it. (Correspondingly, his conclusion is weaker.) I am not moved, however, by Wasserman’s reason for conceding, since contra Wasserman, no sequence of temporal parts of Billy-Minus is an intrinsic duplicate of any sequence of temporal parts of Willy, as none of Billy-Minus’s temporal parts is
whether an object at \( t_2 \) stands in the I-relation to an object at \( t_1 \) depends in part on whether there is \textit{anything else} at \( t_2 \) that is as good (or better) a candidate for standing in the I-relation to the earlier object. And although others have objected to Nozick’s so-called closest-continuer account of personal identity on precisely those grounds (that it runs afoul of the intrinsicness of the I-relation), it is just not obvious that those are good grounds on which to object.\(^{34}\) And so it does not seem to be much of a cost for the Humean simply to deny the intrinsicness of the I-relation.\(^{35}\) But the same cannot be said with regard to the intrinsicness of the property \textbf{being a continuant}: as I have said, that it is intrinsic seems to follow from Phenomenal Internalism, and being forced to deny the latter is a formidable cost indeed.

4.2.1.2 Objection: Temporary Predication

A more difficult objection to contend with begins with a point about temporary predication. The account of persistence I have been assuming, according to which ordinary particulars persist by having temporal parts, has as a natural companion a certain view about the meaning of such locutions as ‘at \( t, x \) is F’. The view is that it means this: ‘the temporal part of \( x \) that exists at and only at \( t \), is F’.\(^{36}\) Now, to say ‘\( x \) is conscious at more than one time’ (which is what ‘\( x \) is a continuant’ abbreviates) is just to say this: ‘there exist some times \( t_1 \) and \( t_2 \), where \( t_1 \neq t_2 \), such that at \( t_1 \), \( x \) is conscious, and at \( t_2 \), \( x \) is conscious’. So, on the companion view of temporary predication I have just sketched, to say ‘\( x \) is conscious at more than one time’ is just

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\(^{34}\)See Wasserman (2005, 585 ff.) for the relevant literature.

\(^{35}\)Hawley (2005) makes the same point.

\(^{36}\)See Quine (1960, 173) and Lewis (1986b, 204). Sider (2001a, §6.1) notes that a worm-theorist – or a four-dimensionalist more broadly – is not forced to accept this account of temporal predication. But it is certainly the most natural one.
to say this: ‘there exist some times $t_1$ and $t_2$, where $t_1 \neq t_2$, such that the temporal part of $x$ that exists at and only at $t_1$ is conscious, and the temporal part of $x$ that exists at and only at $t_2$ is conscious’.

If that’s so, however, Causal Constraint is in trouble, for then being a continuant comes too easily. Suppose there are two instantaneous objects (objects that exist at exactly one time) $x_1$ and $x_2$ that are (a) conscious, (b) exist at different times, and (c) are causally unrelated. Then as long as there is something that is the sum of $x_1$ and $x_2$, then there is something (their sum) that has conscious temporal parts that exist at different times – and hence, on the companion view of temporary predication I sketched, it is a continuant – but whose temporal parts are causally unrelated.\footnote{The weaker claim that there is something that has as parts $x_1$ and $x_2$ and has no parts that exist at the same time as $x_1$ and $x_2$ other than those that overlap $x_1$ or $x_2$ would of course do for the purposes of the objection. But nothing I say will turn on using the simpler but stronger view.} The falsity of Causal Constraint would follow immediately. And the rub of it is that there are philosophers – Humeans among them – who think that every plurality of objects whatsoever has a sum.\footnote{As in nt. 37, weaker claims would do. But again, nothing I say will turn on using the simpler but stronger view.} Thus, many objects automatically get to be continuants simply because they have the right temporal parts, despite the absence of causation between those parts. The fact that we single out some of those continuants for special mention – calling only those whose temporal parts stand in the right sort of causal relation ‘persons’ – is neither here nor there. That practice signifies either something interesting about us and the concepts we possess, or about persons: but if the latter, it does not signify that all and only persons are continuants, since many non-persons – like the sum of me and Abraham Lincoln – are continuants.\footnote{See Sider (2001b) for a related point.}

One might initially reply to this objection by denying that it’s possible for an instantaneous object to be conscious, let alone for there to be two such objects

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\footnote{See Sider (2001b) for a related point.}
that satisfy yet further conditions. But this won’t help that much. For a nearly identical objection could be raised against a view that is as well motivated as Causal Constraint, without relying on the assumption that it’s possible for an instantaneous object to be conscious. Consider the following view, which is closely related to Causal Constraint:

Causal Constraint*: Necessarily, for any times $t_1$ and $t_3$ and anything $x$, if $x$ is conscious at $t_1$ and at $t_3$, then there is no time $t_2$ (earlier than $t_3$ and later than $t_1$) such that for any temporal part $TP_1$ of $x$ that exists before $t_2$ and any temporal part $TP_2$ of $x$ that exists after $t_2$, $TP_1$ stands in no causal relation to $TP_2$

This principle says, in effect, that a continuant can’t be composed of two temporal segments that are causally isolated from one another and still be conscious at times both before and after the “moment of isolation”. Causal Constraint* seems just as well motivated as Causal Constraint: notice that Armstrong’s argument (involving wizards) tells in favor of the former just as much as it tells in favor of the latter. And so it seems that one should accept Causal Constraint only if one accepts Causal Constraint*. But the objection under consideration can be recast in a fairly obvious way so that it does not assume the possibility of an instantaneous object being conscious, and such that it seems to undermine Causal Constraint*. Since nothing is gained by complicating the discussion, I will simply assume that it’s possible for an instantaneous object to be conscious and respond to the objection under consideration in its original form.

My response to the objection under consideration is that it fails to address the widely-shared intuition about Armstrong’s case involving wizards. I consider that intuition to be a datum with which any theory must contend, including a semantic theory about temporary predication.\textsuperscript{40} As I see things, the right thing to do is to

\textsuperscript{40}By ‘that intuition’, I do not mean the fact that many people have that intuition, but the proposition that they intuit.
modify the semantic theory about temporary predication that usually accompanies four-dimensionalism. The claim that locutions of the form ‘at $t$, $x$ is F’ are synonymous with locutions of the form ‘the temporal part of $x$ that exists at and only at $t$, is F’ implies that all instances of the following two conditional-schemas are true:

**Necessity** At $t$, $x$ is F, only if the temporal part of $x$ that exists at and only at $t$, is F

**Sufficiency** At $t$, $x$ is F, if the temporal part of $x$ that exists at and only at $t$, is F

What cases such as Armstrong’s wizards suggest is that some instances of Sufficiency are false: it’s just not the case that, at 12:35 PM on April 4, 2013, the sum of Abraham Lincoln and me is conscious, despite the fact that its instantaneous temporal part that exists at and only at that time that is conscious.

In any case, the fact that some instances of Sufficiency are false is uncontroversial. There are certain predicates that are true of my instantaneous temporal parts, but are not even temporarily true of me. For example, the temporal part of Aaron that exists at and only at 12:35 PM on April 4, 2013, is a proper part of Aaron. However, it’s never true – not even at 12:35 PM – that Aaron is a proper part of Aaron. Similarly, the temporal part of Aaron that exists now is instantaneous, but it’s not true now that Aaron is instantaneous. The predicates ‘$x$ is a proper part of Aaron’ and ‘$x$ is instantaneous’ provide clear exceptions to Sufficiency: my reply simply extends the range of these exceptions to include the predicate ‘$x$ is conscious’. Now, how exactly a four-dimensionalist should modify the semantic theory that usually accompanies her view on persistence is an interesting question, and it’s not one about which I have something new to say. But the fact that it must be modified ought to be uncontroversial.\footnote{There might also be a need to modify Necessity in light of things like instantaneous velocity/acceleration predicates (Sider 2001a, 34–35).}
4.2.2 Argument from Temporal Direction Constraints

I turn now to the task of fleshing out The Argument from Temporal Direction Constraints. Again, its first premise is Phenomenal Internalism; and its second premise is roughly that any being which has a temporally extended experience of such-and-such character must have temporal parts that stand in a certain temporal-direction relation. (Note again that as opposed to the second premise of the first argument, the character of the temporally extended experience figures into the second premise of this argument.) It is easiest to state the claim if it focuses on a particular case, viz. that of a continuant who is conscious whenever it exists, and if it focuses on what it’s like to be that thing over the course of its whole life. Unfortunately, even when it is focused in this way, expressing it precisely and concisely requires the introduction of some technical terminology, which might distract the reader. So after I introduce the requisite terms and state the claim, I will illustrate the claim with a simple example.

First, let us introduce a term to describe a continuant that is continuously conscious:

(D1) ‘x is a continuously conscious continuant’ =df x exists at more than one time and and at every time at which x exists, x is conscious

Then, let’s introduce a term for a phenomenal property that is maximally specific:

(D2) ‘P is a comprehensive phenomenal property’ =df (a) P is a phenomenal property and (b) for any phenomenal property Q, P entails Q or ¬Q

This is a property that specifies, down to the last detail, what it’s like to live the whole life of its bearer. If two beings differ with respect to their comprehensive

\footnote{The first clause is needed since otherwise, any property which for every phenomenal property entails its negation – like the property being a doorknob – would count as a comprehensive phenomenal property.}
phenomenal property (or properties), then it can’t be that what it is like to live one’s life is exactly the same as what it is like to live the other’s.

Next, let us introduce a term for a partition of an object into temporal parts:

**(D3)** ‘set S is a temporal partition of x’ = \(df\)

(a) All members of S are temporal parts of x, and
(b) No two of the members of S overlaps in time (i.e., no two of the members of S is weakly located at the same time)\(^{43}\), and
(c) x is the sum of the members of S

Finally, using that term we can then say when it is that two beings have the same “breakdown” of temporal parts, and when it is that they have the same “breakdown” of temporal parts in the same temporal order:

**(D4)** ‘x and y are partition-equivalent’ = \(df\) for any set \(S_1\) that is a temporal partition of x, there is a set \(S_2\) that is a temporal partition of y such that there is a one-to-one mapping from \(S_1\) to \(S_2\) which maps a thing to something with the same intrinsic nature\(^{44}\)

**(D5)** ‘x and y are order-equivalent’ = \(df\) for any set \(S_1\) that is a temporal partition of x, there is a set \(S_2\) that is a temporal partition of y such that there is a one-to-one mapping from \(S_1\) to \(S_2\) which (a) maps a thing to something with the same intrinsic nature, and (b) preserves temporal order\(^{45}\)

With all the terms in place, we are now in a position to state the second premise of **The Argument from Temporal Direction Constraints**:

**Temporal Direction Constraint**: For any two possible continuously conscious continuants that instantiate the same comprehensive phenom-

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\(^{43}\)On the notion of *weak location*, see Parsons (2007).

\(^{44}\)That is, there is a one-to-one mapping \(f\) from \(S_1\) to \(S_2\) such that for any \(x\) and \(y\), if \(f(x) = y\), then for any property \(Q\), \(Q\) is an intrinsic nature of \(x\) iff \(Q\) is an intrinsic nature of \(y\).

\(^{45}\)That is, there is a one-to-one mapping \(f\) from \(S_1\) to \(S_2\) such that (a) for any \(x\) and \(y\), if \(f(x) = y\), then for any property \(Q\), \(Q\) is an intrinsic nature of \(x\) iff \(Q\) is an intrinsic nature of \(y\) and (b) for any \(x_1, x_2, y_1,\) and \(y_2\), if \(f(x_1) = y_1\) and \(f(x_2) = y_2\), then \(x_1\) is earlier than \(x_2\) iff \(y_1\) is earlier than \(y_2\).
enal properties, if they are partition-equivalent, then they are order-equivalent.\footnote{I have put the thesis as a possibilist would; however, there is an actualist-kosher translation that relies on a four-place analogue of the predicates defined in (D4) and (D5): in any world \( w_1 \), for any \( x_1 \) and \( P \), if \( x_1 \) is a continuously conscious continuant and \( P \) is a comprehensive phenomenal property that \( x_1 \) instantiates, then in any world \( w_2 \), for any \( x_2 \) such that \( x_2 \) is a continuously conscious continuant that instantiates \( P \), if \( x_1 \)-in-\( w_1 \) and \( x_2 \)-in-\( w_2 \) are partition equivalent, then they are order-equivalent. Assuming the correctness of S5, this is equivalent to the claim in the text. Throughout the remainder of this section, for ease of comprehension I formulate claims assuming possibilism; but in each case an analogous actualist-kosher translation is available.}

As I said, this claim and the terminology it involves might be a little confusing. To help eliminate the confusion, I will illustrate the claim with a fanciful example. Consider a race of peculiar creatures, the Shorts, who are so-named because they are all so short-lived. Each one of the Shorts exists for just two moments.\footnote{If time is dense – that is, if between every two moments of time there is another moment of time – then each Short will live a “gappy” existence; that is, for each Short, there are three times, \( t_1 \), \( t_2 \), and \( t_3 \), such that \( t_2 \) is between \( t_1 \) and \( t_3 \), and it exists at \( t_1 \) and \( t_3 \) but not \( t_2 \). Since this example is merely for illustrative purposes, I will not fret about whether such things are possible.} Not only do they live such short lives, they live thoroughly uninteresting lives. In each moment of their existence, they have one of two types of experiences: a visual experience of a green flash or a visual experience of a red flash. Some Shorts are lucky enough to have a little variety in their lives: one moment they have a visual experience of a red flash, and the other of their moment’s they have a visual experience of a green flash. Those are the Mixed Shorts. Then Temporal Direction Constraint implies that any two possible Mixed Shorts who instantiate the same comprehensive phenomenal property will also have their green and red experiences \textit{in the same temporal order}: if one has a green experience earlier than she has a red experience, so will the other, and vice-versa. If they had them in a different order, they would have different comprehensive phenomenal properties: what it would be like to live the one’s life would be different from what it would be like to live the other’s. The two would have experiences that differed in much the same way as the experiences of two people who were “left-right inverted”. (Picture a world just like the actual world but in which everything aside
from you is “left-right inverted”: wouldn’t your overall experience be very different from how it is in the actual world?48)

Before I go on to defend Temporal Direction Constraint, let me explain how it, in conjunction with Phenomenal Internalism, spells trouble for Patchwork. Consider some continuously conscious continuant, Carl the Short, who had a green experience first and then a red experience. Now, if Phenomenal Internalism is true, then being conscious is intrinsic.49 And it follows from that that the property being a continuously conscious continuant is also intrinsic, the same way it follows from the fact (if it is a fact) that being green is an intrinsic property that the property being green all over is intrinsic. So every possible intrinsic duplicate of Carl is a continuously conscious continuant. Furthermore, since every comprehensive phenomenal property is a phenomenal property, if Phenomenal Internalism is true, then every comprehensive phenomenal property is intrinsic. So every possible intrinsic duplicate of Carl is a continuously conscious continuant which instantiates the same comprehensive phenomenal property (or properties) as Carl. Finally, it seems clear that Carl and every possible intrinsic duplicate of Carl are partition-equivalent. So every possible intrinsic duplicate of Carl is a continuously conscious continuant that instantiates the same comprehensive phenomenal property as Carl, and which is such that Carl and it are partition-equivalent. But then if Temporal Direction Constraint is true, then Carl and every possible intrinsic duplicate of Carl are order-equivalent: more concretely, every possible intrinsic duplicate of Carl has a temporal part that has a green experience and a temporal part that has a red experience, and the former exists before the latter.50 From which it follows that for some temporal-direction relat-

48Some have suggested denying this. See Lee (2006). I have nothing more to say about suggestion other than it seems obviously false.

49See nt. 23.

50Here I assume that Carl himself has a temporal part that has a green experience and a temporal part that has a red experience, and the former exists before the latter, and that (per Phenomenal
tion $T$, every possible intrinsic duplicate of any sequence whose elements include Carl and all Carl’s (proper) temporal parts instantiates $T$.\textsuperscript{51} And that is inconsistent with the Delocalization of Temporal Direction – the claim that no temporal-direction relation is ever intrinsic to any possible sequence – which I argued in §2.3.2.3 is entailed by Patchwork.\textsuperscript{52}

Now I turn to a defense of Temporal Direction Constraint. I offer an argument for the implication of Temporal Direction Constraint for the case of the Mixed Shorts – that any two possible Mixed Shorts with the same comprehensive phenomenal property have their green and red experiences in the same temporal order – and I trust it will be clear how the argument can be generalized. Roughly, the argument I give relies on an entailment running in the “other direction”: whereas Temporal Direction Constraint implies that no two Mixed Shorts can have the same comprehensive phenomenal property and have a different temporal ordering of their brief experiences, my argument relies on the premise that no two Mixed Shorts can share the same temporal ordering of their brief experiences and have different comprehensive phenomenal properties.

Here’s the argument:

(1) Necessarily, any Mixed Short that has a green experience and then has a red experience, has an experience of seeing green and then red; and necessarily, any Mixed Short that has a red experience and then has a green experience, has an experience of seeing red and then green. (Modal Premise)

The idea is that if you tell me that a Mixed Short first had an experience of seeing internalism) the property having a green/red experience is intrinsic.

\textsuperscript{51}The claim that this follows relies again on the following assumption: any possible intrinsic duplicate of a sequence whose elements include $x$ and all of $x$’s spatial/temporal parts is a sequence whose elements include something $y$, which is an intrinsic duplicate of $x$, and all of $y$’s spatial/temporal parts.

\textsuperscript{52}I will address the objection that this conclusion doesn’t fly in the face of the Delocalization of Temporal Direction since it might be that any such sequence/relation pair is temporally innocent.
green and then she had an experience of seeing red, then I can guarantee you that she had an extended experience as of seeing green and then red. I don’t see how she could avoid it.

Allow me to emphasize that this assumption is a bit subtle, and it should not be confused with two nearby assumptions. On the one hand, I do not mean I can guarantee you that she had an experience of the “shift” from green to red: the mere succession of experiences of which you have apprised me is not enough information to be sure of that, as some philosophers and psychologists will be quick to point out. Perhaps her experiences won’t be “diachronically bound,” as is obvious enough if that requires a short-term memory. I mean something weaker: I mean she has whatever phenomenal properties are had in common by an ordinary person who sees a green flash and then a red flash, and that of a short-term-memory-deprived person, say, who sees the same sequence of flashes. On the other hand, I obviously do not mean to say something wholly trivial, so I do not mean to say that if she had a red experience and then a green experience, then she had a red experience and then a green experience. I mean something stronger: the consequent is supposed to characterize her whole temporally extended experience, what it is like to live her whole life, not merely the succession of her brief experiences.

The second premise is that any two Mixed Shorts who had those two extended experiences would differ phenomenally, i.e. they would have non-equivalent comprehensive phenomenal properties.

(2) For any two possible Mixed Shorts \(x\) and \(y\), if \(x\) has an experience of seeing green and then red and \(y\) has an experience of seeing red and then green, then \(x\) and \(y\) have non-equivalent comprehensive phenomenal properties. (Distinction Premise)

They could have equivalent comprehensive phenomenal properties only if what it was

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53See discussion in Dainton (2008).
like to undergo the one experience is exactly like what it is like to undergo the other. And I don’t see how that could be.

Obviously enough, premises (1) and (2) entail that any two possible Mixed Shorts with the same comprehensive phenomenal property have their green and red experiences in the same temporal order.

I suspect however that both premises will be sources of resistance. Let me take objections in reverse order.

4.2.2.1 Objection: Indiscernible Experiences

Here, I imagine, is what my interlocutor might say about premise (2):

I don’t recognize the dimension of variation that you seem to. Of course, experiences can differ from one another with respect to what it’s like to undergo them. But you think that even two subjects who have duplicate brief experiences can still differ with respect to how things seemed to them overall. And thus you say that things would seem different to someone who has an experience of seeing green and then red from how they would seem to person who had an experience of seeing red and then green. And, crucially, this is supposed to be so even if the two subjects lack memories. But I just don’t see how things could seem different at all to the two subjects; it seems to me that the phrases ‘an experience of seeing green and then red’ and ‘an experience of seeing red and then green’ – in the sense that you mean them – are just two ways of picking out the same type of experience in different words. After all, at no time could you tell which of them you were having.

My reply to this objection is that I find it simply incredible. I could see how a theory that someone held – say, the Delocalization of Temporal Direction or its Humean parent, Patchwork – might compel her to say such things, but I don’t see how she could believe them. Here I must appeal to the reader’s imaginative capabilities. If you imagine yourself seeing two flashes of different color – and even suppose that you have no short-term memory (or whatever else it takes to ‘bind’ experiences together over time) – isn’t it obvious that there are (at least) two different ways things could
seem to you overall, depending on which temporal order you are fed the flash?54

Of course, it’s true that at no time could you tell which situation you were in. But the implicit premise of the objection is that if two experience types are indistinguishable – i.e., a subject having an experience of either type cannot tell at any time which type of experience she’s having – then the two experience types are identical. But that premise is plausible only if restricted to momentary experiences (or of minimum duration); when it comes to extended experiences, the premise is extremely implausible. After all, consider the difference between an experience of hearing a constant air-raid siren for 5 minutes (with no short-term memories mingling in) and an experience of hearing a constant air-raid siren for just a second (again with no short-term memories mingling in). These experiences are surely of different types, and their subjects would have different comprehensive phenomenal properties (assuming those are their only experiences) but a subject having an experience of either type cannot tell at any time which type of overall experience she has.

4.2.2.2 Objection: Personal Time

Now for a speech from my interlocutor who resists premise (1):

While it may be unusual for a subject’s “subjective time” to come apart so drastically from “objective time,” there is no barrier in principle to such a thing. Say I step into a time machine in 2015, then head back to the year 1905, carry on a conversation with Einstein for a few minutes, and then pop out of existence. David Lewis taught us that in order for this description to even make any sense - how could an event in 1905 “follow” an event in 2015? - we have to appeal to “personal time.” (Or at least that’s a very good way to make sense of the description.) We would say that in my personal time, my conversation with Einstein happened after I got in the time machine (even though in “external time” my conversation preceded my getting into the machine by over a century). Then I would have had an experience of stepping into a time machine and then conversing with Einstein. So what if one of the Mixed Shorts

54So as not to beg any questions about premise (1) here, let’s say that it would so depend in the usual case.
is “backwards time traveler,” who “started” his life later in external time than he “ended” it? Then even if he had a green experience and then, in external time, had a red experience, he would still have an experience of seeing red and then green. So premise (1) is false.

This line of thought, while tempting, seems to involve a serious confusion. It conflates Lewis’s notion of personal time with what my imaginary interlocutor (aptly) called subjective time. Your personal time plays much of the role in your life that external time plays in the life of a non-time-traveler, in that it tracks developmental progress. Thus, the ordering of stages in your personal time is a matter of their “causal order” and their (rough) qualitative correspondence with the ordering of stages of an ordinary person in external time. As Lewis puts it, “First come infantile stages. Last come senile ones. Memories accumulate. Food digests. Hair grows. Wristwatch hands move.” (1976)

This is a perfectly fine way to talk so long as we keep in mind what we mean by it; in particular, we must not be confused into thinking that personal time has anything to do with the order of experiences from one’s “subjective point of view,” or even having a subjective point of view at all (perhaps ‘personal time’ was a misleading term of art). Everything subject to change - animal, vegetable, mineral - has its own personal time. Once we are clear on what ‘personal time’ means, then it is obvious enough that a backward time traveler has stages ordered in personal time differently from how they are ordered in external time; but equally obviously, their being so ordered in personal time has no straightforward implications for whether the imagined time traveler has an experience of seeing red and then green or an an experience of seeing green and then red.

My interlocutor might of course continue to object even after this possible confusion between subjective time and personal time has been cleared up. Perhaps she will say that the temporal character of a person’s temporally extended experience is determined by the causal order of her briefer experiences, rather than their temporal
order. So the ordering of experiences in one’s personal time, even when ‘personal
time’ is properly understood, is relevant for determining the character of one’s com-
prehensive experience, at least insofar as causal order is relevant to the ordering of
events in one’s personal time. If a Mixed Short has a green experience, which then
causd her to have a red experience, then she will have an an experience of seeing
green and then red, regardless of the temporal order of her short experiences.

Now, I don’t see why anyone would think this. Why think that the causal order of
one’s short experiences, rather than their temporal order, determines the temporal
character of one’s extended experience? I recognize that certain time-travel stories
perhaps suggest this to be the case. But that is only because the order of a narrative
strongly suggests an ordering in subjective time, and in many time travel stories, the
events are narrated in the order that corresponds to their order in personal time.
They thus tend to suggest that the temporal character of a backward time-traveler’s
experience is determined by the ordering of her experiences in personal time. If, on
the other hand, they were narrated in the order that corresponds to their order in
external time, they would, I think, suggest that the temporal character of a backward
time-traveler’s experience is determined by the ordering of her experiences in external
time. In any case, even if it’s true that the causal order of one’s short experiences,
rather than their temporal order, determines the temporal character of one’s extended
experience, that would simply shift the problem from the Delocalization of Temporal
Direction to the Delocalization of Causation. For this proposal would provide an
independent argument for a Causal Constraint on the conscious life of a continuant.

My tireless interlocutor might press further. She might claim that nothing at
all determines the temporal character of a persisting subject’s temporally extended
experience, in this sense: two persisting subjects with the very same types of short
experiences, standing in the same causal and temporal order, might nevertheless have
very different types of temporally extended experiences. This seems, to me at any rate, extremely implausible.

Finally, she might claim that there is something other than the temporal or causal order of a persisting subject’s short experiences that determines the temporal character of that subject’s temporally extended experience. But I don’t see what that could be. That concludes my argument for Temporal Direction Constraint, and with it The Argument from Temporal Direction Constraints.

4.3 A Way Out? On Temporal Inverts

In this chapter, I have given two arguments whose conclusions are apparently inconsistent with Patchwork. The conclusion of one argument is that there is a class of sequences such that a causal relation is intrinsic to any sequence in that class, which seems to fly in the face of the Delocalization of Causation; the conclusion of the other is that there is a class of sequences such that some temporal-direction relation is intrinsic to any sequence in that class, which seems to fly in the face of the Delocalization of Temporal Direction. And both Delocalization theses, I have argued, are entailed by Patchwork.

But one might point out that matters are not so straightforward. For it is not obvious that the conclusions of the two arguments really do fly in the face of the corresponding Delocalization theses. After all, those theses allow for some causal and temporal-direction relations to be intrinsic to some sequences. In particular, the Delocalization of Causation makes an exception for causally innocent sequence/causal relation pairs: if as a matter of necessity every non-causal duplicate of a certain

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55 Well, not any other way of ordering them. After all, one way of ordering them is in accordance with the order in which they “appear” in the subject’s extended experience.

56 I suppose it could be some combination of a temporal-direction and causal condition. But this would be of no advantage for the Humean over the pure conditions.
sequence instantiates a certain causal relation, then the Delocalization of Causation is silent on whether that causal relation is intrinsic to that sequence. (Indeed, that causal relation is intrinsic to that sequence, since every intrinsic duplicate of it is *ipso facto* a non-causal duplicate of it.) And the Delocalization of Temporal Direction makes an exception for *temporally innocent* sequence/temporal-direction relation pairs: if as a matter of necessity, every non-temporal duplicate of a certain sequence instantiates a certain temporal-direction relation, then the Delocalization of Temporal Direction is silent on whether that temporal-direction relation is intrinsic to that sequence. (Indeed, that temporal-direction relation is intrinsic to that sequence, since every intrinsic duplicate of it is *ipso facto* a non-temporal duplicate of it.) So perhaps when it comes to sequences of continuants and their temporal parts, the causal (temporal-direction) relations which, as I have argued, they instantiate intrinsically, are necessarily instantiated by any non-causal (non-temporal) duplicates of those sequences. The threat to the Delocalization theses would be neutralized.

This might seem like a promising approach, but it isn’t. One problem is that the suggestion that every potentially “offending” sequence/relation pair is causally/temporally innocent seems dubious at best. Granted, the question of whether the suggestion is correct “officially” turns on some recondite and difficult-to-settle questions about which relations are perfectly natural non-causal/non-temporal-direction relations. But considering the question “unofficially,” I find it hard to believe that every possible region that duplicates all the *non*-causal facts in the region I occupy is a region where there’s some causation going on: that seems very implausible on any account of causation – Humean and non-Humean – of which I am aware. And I find it only a little easier to believe that every possible region that duplicates all the *non*-temporal-direction facts in the region occupied by Carl the Short is a region which contains something such that it and Carl the Short are order-equivalent.

But even if the suggestion is correct, this approach to saving Patchwork will not
succeed. At least with respect to the temporal-direction constraints on a conscious life, that Patchwork is inconsistent with such a constraint can be shown fairly straightforwardly. Assume it’s true (as I argued follows from Phenomenal Internalism and Temporal Direction Constraints) that Carl the Short and every possible intrinsic duplicate of Carl are order-equivalent: more concretely, that every possible intrinsic duplicate of Carl has exactly one temporal part that has a green experience and exactly one temporal part that has a red experience, and the former exists before the latter. But now assume Patchwork. Patchwork implies that there is a possible world in which there are two intrinsic duplicates of Carl the Short, which are temporally inverted with respect to each other. (Remember, Patchwork guarantees the possibility of any spatiotemporal arrangement of instances of Carl’s intrinsic nature, as long as the arrangement fits that intrinsic nature. But if temporal-direction relations are extrinsic – a fact which follows from Patchwork – then there’s no basis on which to say it doesn’t fit. See §2.3.2.3.) That is, it implies there is a possible intrinsic duplicate of Carl which is such that it and Carl are not order-equivalent: more concretely, that there is a possible intrinsic duplicate of Carl that has exactly one temporal part that has a green experience and exactly one temporal part that has a red experience, and the former does not exist before the latter.\(^57\) Contradiction.

4.4 Whither?

So Patchwork really does seem to be at odds with the conjunction of Phenomenal Internalism and Temporal Direction Constraint; and although it’s not as clear, it seems to be at odds with the conjunction of Phenomenal Internalism and Causal Constraint as well. Patchwork seems to rob the world of the intrinsic structure that

\(^{57}\)It can’t well be that each of the two intrinsic duplicates of Carl the Short is such that it and Carl the Short are order-equivalent, unless the two are themselves order-equivalent; but then they are not temporally invereted after all.
is needed to support conscious beings like ourselves. This of course leaves us with something of a conundrum. On the one hand, I offered an argument for Patchwork, an argument which seems to me as compelling as arguments get in this area. On the other hand, Patchwork apparently has implications that I have just argued are untenable. What do we do about this? I turn to this question in the next and final chapter.
CHAPTER 5

MONISM TO THE RESCUE

**Reader Beware:** In this chapter I will challenge much of what I argued in Chapter 2. In particular, I will challenge the claim that significant portions of the contemporary Humean system are entailed by Patchwork. Thus, if you have been convinced by my arguments that they are so entailed – and I hope you have – prepare to be unsettled.

5.1 An Essay on a Related Conundrum

I hope to show in this chapter that there is a solution to the conundrum that confronted us at the end of the previous chapter. In very rough outline, the solution is that the apparent implications of Patchwork which are untenable are not really implications of Patchwork after all. Where my arguments went wrong, according to this solution, is in assuming at several points that the provisos in Patchwork were satisfied, when they in fact weren’t. This wasn’t quite my fault, because the provisos are unsatisfied only if a very surprising and peculiar state of affairs obtains.

Now, I plan to present my solution in a somewhat oblique manner. The bulk of this chapter (all of §5.1) will be taken up by an essay that takes as its point of departure a related conundrum, one which arises if we suppose the thesis known as ‘Causal Essentialism’ (together with Patchwork). The apparent violations of Patchwork that are induced by Causal Essentialism are well-nigh ubiquitous, and the ubiquity of the problem brings it into sharper relief. The essay’s central thesis is that if Causal Essentialism is true, then a certain form of Monism is as well, and it is structured
as an argument for that claim. However, its lessons for how to solve our conundrum can readily be drawn, and in §5.2 I will draw out those lessons.¹

5.1.1 Background: Causal Essentialism and Varieties of Monism

A growing number of philosophers have recently argued for the following thesis:

**Causal Essentialism:** every non-trivial qualitative property/rela-
tion confers causal powers, and whatever causal powers it confers, it is essential to it that it confers *those* causal powers (Shoemaker 1980; Molnar 2003; Bird 2007).²

This can be sharply contrasted with the Humean view that *mass,* say, only contingen-
tently “behaves” the way the Law of Conservation of Linear Momentum says it does. Causal Essentialism has many interesting consequences. One of its consequences is that there are apparent violations of Patchwork: the way one thing is intrinsically seems to place constraints on the way the rest of the world can be intrinsically.³ These apparent violations of Patchwork suggest a unified, or monistic, picture of the world, one very different from the Humean picture of “entirely loose and separate” things. Of course, a picture is just a picture, not a thesis. But I claim that, assuming Patchwork, Causal Essentialism might well imply some version of Monism, the thesis that, in a non-trivial sense, the World is One: the apparent conflict between Causal Essentialism and Patchwork can be resolved only if some version of that thesis is

¹Note: I do not endorse Causal Essentialism, mainly because I am not aware of any good argument for it. Nevertheless, I think it is instructive to consider how a Causal Essentialist should deal with a conundrum very similar to the one I face.

²A terminological note: I am using ‘power’ in such a way that powers are a species of properties. Thus, according to Causal Essentialism as I’ve stated it, powers confer powers just as non-powers confer powers.

On a more substantive note, some Causal Essentialists recognize some exceptions, such as *historical* properties (and presumably *futurals* as well), and perhaps extrinsic geometric properties (Molnar 2003). The existence of these exceptions, if such there be, will not affect my argument.

³Of course, even the weaker thesis that *some* intrinsic properties confer whatever powers and dispositions they do essentially also has that consequence. The importance of this fact will emerge in §5.1.4.
true. “Some” version because Monism comes in several varieties. “Might” in fact imply because there are two escape routes, two views which are such that if one of them is true, Causal Essentialism does not imply any form of Monism at all (or at least if there be such an implication, it cannot be demonstrated in the way I will suggest). Whether a Causal Essentialist should take one of the escape routes or accept the monistic conclusion is a matter of weighing the overall plausibility of the escape routes against the overall plausibility of the version of Monism otherwise implied by Causal Essentialism, a task I will take up beginning in §5.1.4. But I’m getting ahead of myself. The first order of business is to pinpoint the version of Monism that might be implied by Causal Essentialism.

Jonathan Schaffer (2007; 2010a; 2010b) has recently called our attention to two such versions, the theses he calls ‘existence monism’ and ‘priority monism’. Existence Monism is the radical ontological doctrine that there is exactly one concrete thing. Now, since we pre-theoretically think there are many distinct concreta – you and I, for example – Existence Monism can itself be specified in at least two ways. The first “eliminates” many of the concreta we pretheoretically think exist. Here’s an example of such a specification: neither you nor I exist. And don’t worry, we’re not alone, since none of our friends exist either. The only concretum is the Cosmos. (The “eliminatavist” specification comes in many other varieties too: you exist and no other concretum, I exist and no other concretum, neither of us exist since God is the only concretum, etc.) The second specification “identifies” the concreta we pretheoretically think exist: it says that both you and I exist, we’re just identical. And don’t worry, we’re not alone: we’re identical with all our friends. And to my hamster and to my cheese danish. And to everything else. (In a sense we are all alone.) So there are two forms of Existence Monism.4 (Existence Monism, need

4There are also hybrids: specifications that “eliminate” some of the things we pretheoretically believe exist, and identify the remaining ones with one another.
not “take” the form of either specification, of course. It can remain as abstract and neutral as my initial statement of it. It would then be the disjunction of its more specific forms.)

Now, Existence Monism, in whatever form, is an enormous pill to swallow.\(^5\) Priority Monism on the other hand is palatable, at least so long as it’s intelligible. The central concept that figures into the doctrine is that of ontological priority: when \(x\) is ontologically prior to \(y\), \(y\) exists and has the nature it does in virtue of \(x\). Priority Monism then is the doctrine that there is exactly one concretum that is basic, i.e. is such that no concretum is ontologically prior to it.\(^6\) And making the very plausible assumption that the ontological priority relations over actual concreta form a well-founded partial ordering, that is equivalent to the claim that there is exactly one concretum such that it is ontologically prior to every other concretum (Schaffer 2010b). (I shall assume that they are indeed equivalent.) Here too there is a variety of available specifications, one for each concretum.\(^7\) Schaffer’s own specification gives pride of place to the Cosmos, the sum of all concreta. But one can accept Priority Monism and think that some other concretum is the basic one.\(^8\) Theistic priority

There is also, I suppose, a third and non-hybrid sort of specification: one that neither eliminates nor identifies most of the things that we pretheoretically believe exist, but which denies of them their concreteness. (See van Inwagen (2009b), for a corresponding taxonomy of views that occupy the terrain of Monism.) Whether such a view makes any sense depends in part on what the concrete/abstract distinction comes to. If, for example, one distinguishes them by Way of Example (Lewis, 1986b) – saying “By ‘concrete thing’ I mean anything that’s like quarks and electrons and you and me” – then I don’t see how such a view could make any sense. But on some of the ways of distinguishing them (Lewis, ibid.), the view at least makes sense, even if it is wildly implausible.

\(^5\)That hasn’t stopped some philosophers from defending it. See Horgan and Potr č (2000) for a defense of an eliminativist specification.

\(^6\)This is slightly weaker than the claim that there exists exactly one concretum that is fundamental (see §1.8.1), i.e. is such that nothing at all is ontologically prior to it.

\(^7\)If Priority Monism is formulated as a necessary truth, and the basic concretum is allowed to vary from world to world, then there are even more varieties.

\(^8\)You might think that you can’t do that if you accept Schaffer’s (2010b) covering constraint, which is the constraint that the Cosmos is the sum of all the basic concreta; but you can – or at least something close enough and equally well motivated – if you accept Mereological Monism,
monists - and I should think that theists would find (bare) priority monism quite congenial - would presumably hold that God is the only basic concrete being.\textsuperscript{9}

So much for Schaffer’s versions of Monism. I’d like to add a third variety to the mix: Mereological Monism. This is the view that there is exactly one concretum that is a part – proper or improper – of every concretum. This view is related to the other two versions of Monism in interesting ways. It is sandwiched between them, logically speaking. On the one hand, Existence Monism can be thought of as the limiting case of Mereological Monism. After all, Existence Monism is equivalent to the thesis that there is exactly one concretum that is an improper part of every concretum.\textsuperscript{10} Mereological Monism is just a bit more relaxed with regard to the mereological relations it allows between the “special” concretum and every concretum. So Existence Monism entails Mereological Monism.

On the other hand Mereological Monism plausibly entails Priority Monism: it does so as long as a mereologically bottom-up picture of priority is (necessarily) correct. That is, as long as (necessarily) a concretum is ontologically prior to any concretum of which it is a proper part. This is intuitive: things are “constructed,” or “put together,” or “built up,” out of their parts.\textsuperscript{11} Thus, (necessarily) if Mereological Monism is true, then there is exactly one concretum, \(x\), such that every concretum is either identical with \(x\) or has \(x\) as a proper part; and hence such that every concretum

\textsuperscript{9}As Jonathan Schaffer pointed out to me, theistic priority monists could agree with Schaffer that the Cosmos is ontologically prior to all “natural beings,” say; indeed, Schaffer’s own thesis seems to be committed to nothing more, since he remarks (2010b) that “deities and spirits, if such there be, are not my concern either”, thus allowing for the possibility that while all natural beings are dependent on their sum, that sum (the largest natural part of the Cosmos) is itself dependent on God or some other non-natural being.

\textsuperscript{10}Where by ‘\(x\) is an improper part of \(y\)’ I just mean ‘\(x\) is identical with \(y\)’.

\textsuperscript{11}Although it’s intuitive, it does seem to commit one to the heavy-duty principle known as mereological essentialism (Chisholm 1973); or at least it does so if whenever \(x\) is ontologically prior to \(y\), \(y\) can’t exist without \(x\).
is either identical with \( x \) or posterior to \( x \). And that’s just Priority Monism. Note, this would deliver a specification of Priority Monism that’s most certainly not Schaffer’s: not the sum of everything, but the part of everything, is prior to all.

I claim that, assuming Patchwork, Causal Essentialism implies Mereological Monism (ignoring the escape routes). I will turn in the next section to the argument for that implication, but first let me make a preliminary remark about the aptness of the term ‘Monism’ as applied to the thesis I have called ‘Mereological Monism’. One might reasonably wonder whether Mereological Monism really deserves the label ‘monism’. Suppose I hold that there is exactly one concretum that is the largest hamburger. That very reasonable thought of mine doesn’t seem to commit me to the idea that, in some non-trivial sense, the World is One. More generally, it’s not as though any view that can be perspicuously expressed by a sentence of form “There exists exactly one concretum that is F” deserves the label ‘monism’. Why this one? And even if we narrow down the views to those that are logically sandwiched between Existence Monism and Priority Monism, it still doesn’t seem that all of them are really versions of monism. For instance, the claim that there is exactly one sum of all concreta is entailed by Existence Monism and perhaps entails Priority Monism (as long as a mereologically top-down picture of priority is (necessarily) correct), but it doesn’t seem to be, all by itself, a version of Monism.

This is surely true. Nevertheless, I believe the label is deserved. For one thing, there is a precise sense in which the special concretum – call it “the One” – leaves no remainder. In standard developments of mereology, the notion of a difference between \( x \) and \( y \) is introduced as that of the largest part of \( x \) which has no part in common with \( y \) (Simons 1987). But if there is something that is the One, then there is no difference between any concretum at all and the One. As a matter of fact, for any concretum \( x \), there is no part of \( x \) – largest or otherwise – that has no part in common with the One. There is no such as thing as the, or even a, remainder when
the One is subtracted from a concretum.

Moreover, given the standard definition of ‘the xs compose y’ (i.e., ‘the xs are all parts of y and no two of the xs overlap and every part of y overlaps at least one of the xs), the One composes every concretum. After all, the One is a part of every concretum, and so every concretum overlaps it. And it gets even more interesting. Assuming the antisymmetry of proper parthood, the One has no proper parts: it is a simple.\textsuperscript{12} So there is some one simple that composes every concretum. Ordinarily we’d go on to infer that there’s just one concretum, period (Existence Monism). Assuming classical mereology, we’d be right.\textsuperscript{13} And even though classical mereology is wrong if Mereological Monism is true (in particular, the so-called Weak Supplementation Principle is false), it’s interesting enough that there’s just one simple of which everything concrete is composed.

Putting the previous two points together: supposing Mereological Monism (and the antisymmetry of proper parthood), there is some simple that composes everything concrete and which leaves no mereological remainder: the One. That thesis certainly seems like a good candidate for a non-trivial sense of the saying “the World is One,” and hence deserves the label ‘monism’.

5.1.2 Conflict and Proposed Solution

As I have said, Causal Essentialism has the consequence that there are apparent violations of Patchwork. To illustrate: according to Causal Essentialism, \textbf{rest mass} is essentially such as to “behave” the way the Law of Conservation of Linear Momentum

\textsuperscript{12}Strictly speaking, what follows without any further assumptions is that it has no \textit{concrete} proper parts; thus, in this and the next paragraph, when I say ‘simple,’ it should be understood that I mean ‘thing with no concrete proper parts’.

\textsuperscript{13}As Peter Simons puts it, “In a classical mereology, there is a fixed relationship between the number of atoms and the number of objects, assuming that everything is made of atoms.” (1987, 17) As Peter van Inwagen noted in conversation, in order to go on and infer Existence Monism, we wouldn’t need to assume \textit{all} the axioms of classical mereology; for example, we wouldn’t need to assume an axiom that (under its intended interpretation) guarantees arbitrary sums.
says it does. So, to take an example I considered earlier (§2.2.1), there is no possible world in which some lonely particle has a certain rest mass at \( t_1 \), it follows a trajectory in spacetime such that its velocity remains constant until \( t_2 \), but its rest mass varies during the interval \([t_1, t_2]\). But the possibility of that state of affairs appears to be guaranteed by Patchwork: Causal Essentialism indeed has the consequence that there are apparent violations of Patchwork.

Now, as far as I can tell, there are just two ways to drive a wedge between the appearance of a violation of Patchwork and the reality of one. One way is to say that although a certain property appears to be intrinsic, it really isn’t. Applied to the case involving the trajectory of a lonely particle, this would involve saying that although such-and-such rest mass appears intrinsic, as a matter of fact it isn’t. I will later give due consideration to this possibility – it is one of the two escape routes – but for now, I will assume it’s false. Indeed I will assume that the fundamental properties that figure into the actual laws of nature – like (determinates of) mass, charge, and spin – are all intrinsic. (Call this thesis ‘Intrinsicness’.) Prominent proponents of Causal Essentialism have concurred (Shoemaker 1980; Molnar 2003; Bird 2007), and I will, at least for the time being, follow their lead.

This brings me to the second way of driving a wedge between appearance and reality. This wedge relies on the proviso in Patchwork about overlap. That proviso leads to another way in which appearances can be misleading: what appears to be disjoint isn’t really (or what appears to be an arrangement which would involve overlap only between intrinsic natures that ‘say the same thing’ about the character of any part their instances share, is not in fact so).

That such appearances of disjointedness are in fact systematically misleading is, I

\[\text{14} \text{At least for the sort of apparent violation we are considering. In other cases, one might consider a third way, which relies on the ‘size-and-shape permitting’ proviso in Patchwork. But that will be of no use in addressing the apparent violations of Patchwork that are induced by Causal Essentialism.}\]

\[\text{15} \text{I began to argue for its falsity in §2.2.1.}\]
claim, implied by Causal Essentialism (conjoined with Intrinsicness and Patchwork). The basic argument for that claim should be obvious enough: if Causal Essentialism and Intrinsicness are true, there are systematic necessary connections between the intrinsic natures of distinct, and apparently disjoint, concreta. But assuming Patchwork is true, then such appearances of disjoint arrangements must be systematically misleading.

Here’s the argument in some more detail. Consider just two concreta, say the Sun and the Earth. Name their intrinsic natures, ‘$Q_{\text{Sun}}$’ and ‘$Q_{\text{Earth}}$’. Now, consider whether for any (apparently mereologically disjoint) spatiotemporal arrangement, it’s possible that $Q_{\text{Sun}}$ and $Q_{\text{Earth}}$ are each instantiated once over, in that arrangement, and no other concretum exists (besides their parts and sums of those parts). Answer: not if Causal Essentialism and Intrinsicness are true. The causal powers and dispositions which, assuming Causal Essentialism and Intrinsicness, are entailed by $Q_{\text{Sun}}$ ($Q_{\text{Earth}}$) are such that nothing with those causal powers and dispositions would take a trajectory with the same shape as that taken by the Sun (Earth) unless it finds itself surrounded by just the right constellation of bodies with just the right causal powers. The actual trajectory of the Sun (Earth) is a result, in the main, of the vector sum of the gravitational forces exerted by each of the surrounding bodies it tandem with its own causal powers and dispositions; keep its own causal powers and dispositions fixed and change those forces – by changing the pattern of instantiation of causal powers elsewhere, say by just “deleting” all the other bodies except Earth (Sun) – and one will of necessity change its trajectory.

But supposing that Patchwork is true, there is only one way to explain away this seemingly mysterious necessary connection, and it is this: there would have to be overlap between those two things in that scenario, even though it doesn’t seem as if there would be.\(^\text{16}\) After all, the supposition is that there is nothing else, and so there

\(^{16}\text{And, moreover, those intrinsic natures would not “say the same thing” about the character of} \)
is nothing else to overlap. And the natural conclusion to draw is that this would not be a feature of those two intrinsic natures only if they were, *per impossibile*, to stand in those spatiotemporal relations. Rather, it would be a feature of those two intrinsic natures no matter where and when they would be instantiated. That is, although it appears that those intrinsic natures could be instantiated without sharing a part, that is not in fact the case. So necessarily, anything that instantiates the one will overlap anything that instantiates the other. And an analogous argument would seem to establish that the same goes for any pair of intrinsic natures, at least of the sort that are instantiated by sequences of actual concreta. Thus, for any two intrinsic natures of sequences of actual concreta, necessarily, anything that instantiates the one will overlap anything that instantiates the other. And that obviously implies that every two concreta in fact overlap.

That’s pretty interesting in its own right. But we can go one step further, assuming that there is at least one concrete simple\(^\text{17}\) (Call this claim ‘Simple’.) That there is at least one concrete simple seems well-supported: it’s true according to what is currently our best physical theory, it’s true according to classical theism, and it’s true according to a host of metaphysical theories about the nature of human persons that have been endorsed by such illustrious philosophers as Plato, Descartes, Leibniz, and Berkeley.\(^\text{18}\) I say that any proposition that has in its favor the consensus of physicists, the faithful, and a fair number of philosophical giants is reasonable to believe unless any part their instances would share.

\(^\text{17}\)What I mean *here* by ‘concrete simple’ is a concretum that has no proper parts, period. See nt. 12.

\(^\text{18}\)Admittedly, the physical and metaphysical theories to which I refer don’t directly deliver the result that there is a concrete simple, since they say nothing about whether ostensibly simple concreta have abstracta, like properties, as parts. But as I will explain in §5.1.5.1, I find the whole notion of a concretum having an abstractum as a part very obscure. So I will assume that no abstractum, if there by any, is part of any concretum.
we have very strong grounds to reject it.\textsuperscript{19} (I will later give due consideration to the possibility of denying it – that is the second escape route – but for now, I will assume Simple is true.) So let’s assume that there is some concrete simple and every two concreta overlap. That conjunction straightforwardly entails Mereological Monism.\textsuperscript{20}

That completes my argument that Causal Essentialism – conjoined with Intrinsicness, Patchwork, and Simple – implies Mereological Monism.\textsuperscript{21} That is, the following five claims form an inconsistent set:

1. Causal Essentialism
2. Patchwork
3. Intrinsicness

\textsuperscript{19}Schaffer (2003) argues that science does not support atomism - and although atomism is stronger than the claim that there is some concrete simple, one might think that science’s support for the latter comes by way of its support of the former – but what he means by that is that there is no empirical evidence for any of the following three claims: (1) There will be a complete microphysics; (2) The complete microphysics will postulate particles; (3) These particles are the mereological atoms. But even if those three claims are not supported by the empirical evidence – indeed, even if they are all false – it might well still be the case that what is currently our best physical theory implies atomism, and \textit{a fortiori} implies the weaker claim that there is some concrete simple. All I claim is the latter.

\textsuperscript{20}Assume there is some concrete simple and every two concreta overlap. So there is some concrete simple \(x\), such that for any concrete \(y\), \(x\) overlaps \(y\); that is, such that for any concrete \(y\), there is some \(z\) such that \(z\) is part of \(x\) and \(y\); but since \(x\) is a simple, it has no parts other than itself; so \(x\) itself is part of \(y\). That is, there is some concrete simple \(x\), such that for any concrete \(y\), \(x\) is part of \(y\). But if there is some concrete simple that is part of every concretum, then there is \textit{no more than one} concretum that is part of every concretum, for if there were more than one, then they’d all be parts of each other, and none would be simple after all. Thus, there is \textit{exactly one} concretum that is part of every concretum. That is, Mereological Monism is true. (And it further follows that there is exactly one concrete simple that is part of every concretum.)

\textsuperscript{21}Both Schaffer (2010a) and Williams (2012) argue for similar-sounding implications (although the variety of Monism they claim is implied is Schaffer’s specification of Priority Monism, rather than Mereological Monism). However, Schaffer (2010a) is concerned with the monistic implications of an importantly different thesis that goes by the name ‘Causal Essentialism’, which is that \textit{individuals} bear their causal powers (and liabilities) essentially. Causal Essentialism, on the other hand, makes no claim about what properties are essential to \textit{individuals}, only about what (higher-order) properties are essential to \textit{properties}. As a consequence, Schaffer’s argument needs to assume something like Patchwork\textsubscript{De Re} rather than Patchwork\textsubscript{De Qualitate}.

And while Williams (2012) is discussing Causal Essentialism proper, I’m not at all confident that I have followed his argument, both because I don’t understand why his talk of “reciprocal manifestations” is needed to generate the apparent conflict between Causal Essentialism and Patchwork in the first place and because I have no idea how accepting Platonism would be a way to avoid it.
4. Simple

5. ¬Mereological Monism

How shall the Causal Essentialist – that is, someone who accepts Causal Essentialism and won’t give it up – react to the dilemma I have presented? It’s now time to take a look at each of her options.

5.1.3 An Option I Will Not ( Seriously) Consider: Reject Patchwork

You might be puzzled by the whole hullabaloo I’ve made in the previous section, especially if you happen to be a published Causal Essentialist. Several Causal Essentialists have explicitly noted and even celebrated the apparent conflict between Causal Essentialism and Patchwork, or something near enough (Molnar 2003; Bird 2007; Wilson 2010). And each of them says, in effect, so much the worse for Patchwork. Thus, Molnar:

In my estimate, we have here a clear reason for resolving the conflict between essentialism and HD (Humean Distinctness, [redacted]) in favor of the former. (2003, 184)

And Bird:

The problem with the Dictum (Hume’s Dictum, A.S.), as with the conceivability-possibility inference, is that insofar as it does conflict with dispositional essentialism, it [is] far from obviously true. (2007, 174)

Their rejection of Patchwork is usually accompanied by the claim that there is no compelling argument in its favor. Molnar (2003, 182) and Bird (2007, 174) explicitly consider an argument based on a “conceivability-possibility link,” and find such an argument wanting; Jessica Wilson (2010), in the longest published discussion

\[22\] Shoemaker (1980) focuses on the closely related conflict between the apparent consequence of Causal Essentialism that the laws of nature are necessary and the Humean view that the laws of nature are contingent.
of justifications for Patchwork of which I am aware, considers the possibilities that Patchwork (what she calls ‘HD’) is analytic, that it is “motivated by intuitions we have no good reason to question,” (634) and that it can be justified by an appeal to an inference to the next explanation, and finds all such justifications wanting. Thus, you might think that the obvious escape route for the Causal Essentialist to take – if it can even be called that – is to reject Patchwork.

And you might advance two more considerations in favor of taking this route. First, the standard argument for Patchwork is the Imaginability Argument (see §3.1). But if a Causal Essentialist is to maintain a consistent set of views by accepting Mereological Monism (or even by accepting that there is universal mereological overlap and denying Simple), then it would seem that imaginability is an absolutely horrible guide to possibility! In whatever sense I can imagine every situation that is guaranteed possible by Patchwork, it seems I can equally imagine a situation in which you and I are mereologically disjoint. So even if the standard grounds for Patchwork are any good, they are not ones available to a Causal Essentialist who accepts Patchwork!23

Second, if Mereological Monism is true (or even if it’s the case that there is universal mereological overlap), then Patchwork is consistent with any modal thesis about the connections between intrinsic natures (at least those instantiated by actual concreta). That is, Patchwork is rendered pretty much useless for the purpose of determining what possibilities there are. So if a Causal Essentialist were to maintain a consistent set of views by accepting Mereological Monism (or even by accepting that there is universal mereological overlap and denying Simple), then she would not be able to make much use of Patchwork to play one of its central roles, which it to allow us to determine what’s possible. As David Lewis puts it, “it is the Humean prohibition of necessary connections that gives us our best handle on the question

23Thanks to Jonathan Schaffer and an anonymous referee for Philosophical Studies here.
what possibilities there are.” (2001b, 611) So even if Patchwork could otherwise “earn its keep” by giving us our best handle on the extent of modal space, it can’t do so for a Causal Essentialist.

So why indeed have I made a hullabaloo? Well, I hope the answer is obvious. As I argued in §3.2, I think there is a compelling argument for Patchwork, which has nothing to do with conceivability or the work Patchwork can do to earn its keep. It has to do with the unacceptable mystery that would be involved in its violation. And so a Causal Essentialist cannot get along by rejecting Patchwork; she must rather accommodate it.

5.1.4 First Escape Route: Reject Intrinsicness

In §5.1.2, I yoked Causal Essentialism to the assumption that the fundamental properties that figure into the actual laws of nature – like (determinates of) mass, charge, and spin – are intrinsic, and I noted that prominent proponents of Causal Essentialism indeed endorse that view. But maybe it’s time for them to reconsider: perhaps the best option for Causal Essentialists is to deny Intrinsicness. If Causal Essentialism is stripped of its committment to the intrinsicality of the fundamental properties, then it can get along just fine with Patchwork, without forcing its adherents to conclude that Simple is false or that Mereological Monism is true.

But this option would come at a very high cost. There are the prices that anyone would have to pay who held that mass and charge and the like are not intrinsic (Hawthorne 2006c). Those are nothing to sneeze at, but much higher are the prices that the Causal Essentialist in particular would have to pay in order to take this escape route in all cases of apparent conflict between Causal Essentialism and Patchwork. So as to maintain the consistency of Causal Essentialism and Patchwork along these lines, Causal Essentialists would need to hold that it’s not possible for any sequence of concreta to instantiate a non-trivial intrinsic nature. For any
non-trivial intrinsic nature, according to Causal Essentialism, entails certain causal powers; and an intrinsic nature that entails causal powers, it would seem, must place some restriction on how its bearer’s environment can be (intrinsically); so we’d face an apparent conflict between Causal Essentialism and Patchwork, one which we can extricate ourselves from only by saying that there are no non-trivial intrinsic natures, or by assuming that there would have to be overlap where we didn’t think there would have to be; and to take the latter option is not to take the escape route presently under consideration in all cases of apparent conflict between Causal Essentialism and Patchwork.

But think about the implications of the fact that necessarily, no sequence of concreta has a non-trivial intrinsic nature. For one thing, it would imply that you and my hamster are intrinsic duplicates: for if you two weren’t intrinsic duplicates, then one of you would have a non-trivial intrinsic nature. But isn’t it fairly obvious that you and my hamster are not intrinsic duplicates? (Shouldn’t you be insulted by the suggestion that you are?)

For another thing, it would seem to imply Necessitarianism, the thesis that there is exactly one possible world. Or at least something near enough. After all, I argued in §2.3.2.5 for the following thesis:

**Intrinsic Settles All:** Any two possible sequences of concreta which are intrinsic duplicates, and such that each one exhausts the concreta – that is, each sequence instantiates the relation being all the concreta there are – instantiate all the same qualitative properties/relations, period.

Since as a matter of necessity, no sequence of concreta has a non-trivial intrinsic nature, any two possible sequences of concreta are intrinsic duplicates; and hence, any two possible sequences of concreta such that each one exhausts the concreta instantiate all the same qualitative properties/relations, period. It seems that the only qualitative departure from actuality whose possibility this would permit is the
empty world! This is a huge pill to swallow.\footnote{It’s also not obvious that one can maintain it while holding on to Patchwork, as the latter is usually fleshed out. Even if there is just one intrinsic nature, Patchwork (as it is usually fleshed out) still guarantees that there could be \textit{any number} of instances of that intrinsic nature, which surely means that there could be qualitative variation between possible worlds.}

What’s more, assuming that no sequence of concreta instantiates a non-trivial intrinsic nature robs Causal Essentialists of one of the primary motivations for their view. Sydney Shoemaker (1980) has argued for Causal Essentialism on the grounds that denying it would imply that we lack all sorts of knowledge that we in fact have. For example, I wouldn’t know that my hammer has (for the most part) stayed the same over the course of the past year, since if Causal Essentialism were false, then I wouldn’t know that the manifest continued presence of causal powers is any indication that the hammer \textit{genuinely stayed the same}; and conversely, I wouldn’t know that my fence changed when I painted it white, since if Causal Essentialism were false, then I wouldn’t know that the manifest variation in causal powers is any indication that the fence \textit{genuinely changed}. Clearly enough, what Shoemaker means is that I wouldn’t know (in the former case) that the hammer’s \textit{intrinsic} properties stayed the same and (in the latter case) that the fence’s \textit{intrinsic} properties changed. (After all, I am able to know that the fence changed in \textit{some} way, namely in its extrinsic properties.) But if nothing concrete has any non-trivial intrinsic properties, then I \textit{don’t} in fact know that the fence changed its intrinsic properties, since it didn’t, and (if I can know that nothing concrete has any non-trivial intrinsic properties) I \textit{can} know that my hammer stayed the same regardless of whether Causal Essentialism is true.

Perhaps, you will say, a Causal Essentialist is best served by taking this escape route only selectively: that is, by saying that when it comes to \textit{some} apparent violations, what’s going on is that certain properties appear to be intrinsic but aren’t, and that when it comes to \textit{others}, what’s going on is that there would have to be overlap
where we didn’t think there would have to be. (This would still be to dispense with Intrinsicness, of course.) But, aside from the inelegance of this compromise, it seems that it would partake of many of the drawbacks of both the denial of Intrinsicness and Mereological Monism, the former to the extent that cases of merely apparent intrinsic properties predominate and the latter to the extent that cases of merely apparent disjointedness predominate.

5.1.5 Accept Mereological Monism

Perhaps the best route then for the Causal Essentialist to take is to simply accept Mereological Monism. (I have skipped over the option of accepting universal overlap but denying Simple, and I will return to it in due course.) If she does so, then she will be accepting the existence of something (the One) very much like the null individual, that thing which is to mereology what the null set is to set theory: it is a part of everything. I say “very much like” since the One need not be as ubiquitous as the null individual: it is guaranteed to be part of every concretum, but abstracta – if there be any – need not have the One as a part. (Of course, it might well be the case that the One is part of every abstractum – either because there are no abstracta, and so it is vacuously true that it is part of every abstractum, or because even though there are abstracta, it is part of every one of them – but that it is is not established by my argument.) Despite this difference, it might be useful to consider the philosophical credentials of the null individual.

Other philosophers have given reasons for believing in the null individual. The least substantive is that if the null individual exists, then the formal theory of parts and wholes can be a complete Boolean algebra, which affords a certain degree of elegance and simplicity to the theory. Recently, Hud Hudson (2006) has argued that the existence of the null individual can help salvage a non-ad-hoc principle to replace the principle of Universal Mereological Composition, the latter of which may have
to go for Cantorian reasons. Even more recently, Hudson (2009) has noted that theists who believe that God is omnipresent might have good reason to accept the existence of the null individual - they should say that God is the null individual - as it affords them an account of omnipresence that is more robust and less theologically problematic than its rivals. The argument I have given might be added to the list of reasons, at least if the fact that there is something that is part of every concretum gives one some reason to believe that there is something that is part of everything.

But philosophers have generally not taken a liking to the null individual. In Peter Simons’s (1987) comprehensive work on mereology, the null individual merits only a dismissive footnote. Hudson nicely summarizes the antipathy of most philosophers:

Curiously, the null individual has not really received a lot of positive press, perhaps stemming in part from its rather dyslogistic name. Occasionally it is mentioned in passing as an embarrassment, as a disanalogy to be explained away, as something which would be even more a mystery than the null set, as something for which no serviceable function can be discerned that might entitle it to existence. (2006, 645)

This attitude is indeed curious. Of course, if there’s no reason to believe that the null individual exists, then we ought not believe there is such a thing (or, at any rate that’s true if we recognize that there’s no reason). But it seems that philosophers have generally adopted the much stronger position that even if we had some reason - and perhaps very good reason - to believe that the null individual exists, it would still be the case that we ought not believe there is such a thing. And it seems as if such a position could be justified only if we have some reason - some very good reason - to believe that there is no such thing. But apart from its dyslogistic name, what are these reasons? I’m not sure what the opponents have in mind, but I can

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25See Hudson (2006) for a complete (or near-complete) list of uses to which the null individual has been put. Some of those might be considered reasons to accept the existence of the null individual, although as Hudson says, “...Martin sees the null individual as qualified for the tasks in (i) - (iv) precisely because he (like Bunge) does not really believe it exists, and thus does not hold it to very exacting standards.” (647)
think of three possibilities; and they’re worth exploring because they expose certain costs of accepting Mereological Monism.

5.1.5.1 Conceptual Cost

The first objection to the null individual has to do with the very concept part. If the null individual exists along with something else, then the so-called Weak Supplementation Principle (WSP) is false. That principle is the following:

(WSP) Necessarily, for any \( x \) and \( y \), if \( x \) has \( y \) as a proper part, then there exists a \( z \) such that \( z \) is a part of \( x \) and \( z \) does not overlap \( y \).

After all, if the null individual exists along with something else, then it is part of that something else (that’s part of its job description); but then by (WSP), there exists some third thing that does not overlap the null individual. But of course there is no such thing since the null individual is part of everything. And it’s clear that there is something that is not the null individual - just look around! - so any proponent of the null individual will have to give up (WSP).26 The problem, say opponents of the null individual, is that (WSP) is a conceptual truth. Anyone who grasps the concept part and reflects on it can just see that one thing can’t be a proper part of another unless there’s something else that is part of the other and disjoint from the one; if there’s nothing else to even go part of the way to “filling in” the difference between \( x \) and \( y \), how are \( x \) and \( y \) not identical?27 So objects the opponent of the null individual.28

26Of course, if Existence Monism is true, then the proponent of the null individual can hold on to (WSP). (If the proponent of the null individual thinks that it’s a necessary being - or even that it’s necessarily true that there is something or other that fits the job description of the null individual - then she can hold on to (WSP) only if she thinks Existence Monism is a necessary truth.) But I don’t take Existence Monism very seriously.

27As should be apparent, I am thinking of a truth’s being a conceptual truth in epistemological terms, rather than metaphysical (Fine 1994) or semantic (Williamson 2006) terms.

28See, for example, Simons (1987).
Suppose the opponent is right about (WSP). Does that spell trouble for Mereological Monism? Well, not obviously. As I’ve noted, the One need not be part of any abstractum. So (WSP) is not clearly inconsistent with the conjunctive claim that Mereological Monism is true and there is something - perhaps even concrete - other than the One. Consider the following model: there are two concreta, the One and the Other. The One is a proper part of the Other. There is something else, the Abstractum, that is also part of the Other. The One is not part of the Abstractum and they do not overlap in any other way.

But a difficulty with this reply on behalf of Mereological Monism is that even assuming (as I am) that there are abstracta, one might find the whole notion of a concretum having an abstractum as a part very obscure. I for one find it very obscure. As far as I know, my dog doesn’t have any abstracta, like properties or propositions, as parts. Just other concreta, like paws and a pancreas. (Ask the vet for more details.) And I don’t think that it’s just as a matter of fact that dogs don’t have any abstract parts; I don’t think they could. (That is, I don’t think it’s possible that there is something that is a dog and has abstract parts. I am not precluding a situation in which something that is in fact a dog could have had or might yet have an abstract part; it just couldn’t, if I’m right, still have been (or still be) a dog, or any sort of concrete thing at all.) My reasons for thinking that are general but not very deep: I simply cannot think of any relation that might reasonably be expressed by the English expression ‘part of’ which is such that an abstractum can bear it to a concretum or vice versa. I cannot conceive of a situation in which a property is, strictly speaking, a part of my dog. Or at least I’m not at all confident that I can.29 I recognize that others claim to be able to conceive of such a situation,

29It has become fashionable to say that the concrete/abstract divide is not a fundamental or joint-carving one. I am not very fashionable, I admit, so it should not surprise the reader that this claim strikes me as very implausible. But I do not wish to take issue here with this piece of contemporary fashion. Even if it is not a fundamental distinction, the following still seems true: for any abstractum I can think of, like the number seven or the property weighing 54 lbs, and any
many of them claim such situations are actual, and some of them even claim that it is the very nature of concrete particulars to have properties - whether universals or tropes - as parts (or at any rate to be related to properties by a relation *very much like* parthood, such as *constituency*). But I am a Platonist about properties and other abstracta - that is, I believe that *if* there are such things, then Platonism is the correct theory of their nature - in part because I find such views inconceivable. Any Causal Essentialist who shares my qualms on this score would, I suspect, find Mereological Monism too costly if it committed her to the claim that concreta have abstracta as parts.

Of course, an alternative available to the adherent of Mereological Monism is to simply deny (WSP). I, for one, have no strong intuition in favor of (WSP), and (WSP) certainly doesn’t seem to be a *conceptual* truth: it’s not as though anyone who grasps the concept *part* and reflects on it can just *see* that (WSP) is true. A piece of my evidence for that is that *my* reflection on the concept *part* doesn’t allow me to see that, and I *think* I grasp the concept *part*. Hudson (2006) too seems unperturbed by the falsity of (WSP), and I think *he* grasps the concept *part*. Others could be added to the list. I do, however, believe there is a slightly weaker claim in the vicinity of (WSP) that is true, and is even a good candidate for being a conceptual truth, which would help explain why some people mistake (WSP) for a conceptual truth:

**(VWSP)** Necessarily, for any $x$ and $y$, if $x$ has $y$ as a proper part, then there exists a $z$ such that $z$ is a proper part of $x$ and $z$ is not a part of $y$.

concretum I can think of, like me or my dog, I cannot conceive of a situation in which the abstractum is, strictly speaking, part of the concretum.

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30 See also Smith (2009). He further argues that it doesn’t appear that (WSP) is *entailed* by any conceptual truth about *part*.

31 Although Smith (2009) denies (VWSP) along with (WSP).
The difference between (VWSP) (Very Weak Supplementation Principle) and (WSP) is just that (VWSP) doesn’t require the “supplement” to be disjoint from that which is being supplemented; it imposes the weaker requirement that the supplement not be a part of that which is being supplemented. (VWSP) seems to do justice to the intuition ordinarily marshalled in favor of (WSP): if for any proper part \( y \) of something \( x \), there is some third thing \( z \) that is not a part - proper or improper - of \( y \) and \( is \) a proper part of \( x \), then it seems like \( z \) could go at least part of the way to “filling in” the difference between \( x \) and \( y \). On the other hand, if there is an \( x \) and \( y \) such that \( y \) is a proper part of \( x \) but there is no third thing \( z \) that is both a proper part of \( x \) and not a part of \( y \), then we might legitimately wonder how \( x \) and \( y \) fail to be identical.\(^{32}\)

And crucially for the adherent of Mereological Monism, (VWSP) is consistent with the following three claims all being true: (1) Mereological Monism, (2) there are concreta other than the One, and (3) no abstractum is part of any concretum. A simple model: there are an infinite number of concreta; for any concretum, the One is a part of it; for any concretum \( x \) distinct from the One, there is some third concretum \( y \) such that \( y \) is a proper part of \( x \) and the One is a proper part of \( y \). (Think of an infinite and “dense” chain of Russian dolls - i.e., between any two Russian dolls there is another Russian doll - which terminates at the bottom with a “simple” Russian doll.) Moreover, (VWSP) is consistent with the following three claims all being true (where (2’) is stronger than (2)): (1) Mereological Monism, (2’) there are concreta such that (a) they are each distinct from the One, and (b) no one of them is part of any other one of them, and (3) no abstractum is part of any concretum. (That it is so consistent is important because I take it that even if, say, you and I overlap,   

\(^{32}\)Simons (1987) considers (VWSP) - which he labels ‘SF2’ - but claims it’s not strong enough, which is why he moves up to (WSP). His reason is just that it doesn’t rule out “a universe all of whose parts overlap each other.” And, Simons says, “surely if a universe is complex (i.e. has proper parts at all), then at least two of these parts will be disjoint.” (27) I guess I just don’t see any reason to think that must be so.
neither of us is a part of the other, and furthermore, neither of us is the One!) Here’s a model: there are two sets of concreta (call them ‘chains’); each chain is infinite and has the One as a member; for each chain, there is some member of the chain (distinct from the One) such that all and only its parts are members of that chain; for any member \( x \) of a given chain which is distinct from the One, there is some third member \( y \) of that chain such that \( y \) is a proper part of \( x \) and the One is a proper part of \( y \); finally, the intersection of the two chains is the One’s singleton set. Any two concreta - one from one chain and the other from the other chain, and neither of them identical with the One - will satisfy condition (2’). (Think of two sets, one whose members are all and only the closed intervals whose lower bound is greater than or equal to -1 and whose upper bound is 0, and the other of whose members are all and only the closed intervals whose lower bound is 0 and whose upper bound is less than or equal to 1.)\(^{33}\) Note, however, that these models are all what we might call “quasi-gunky,” in that every concretum is such that all of its parts (other than the One) have proper parts distinct from the One.\(^{34}\)

So here are the costs of accepting Mereological Monism so far, having to do with the concept \textit{part}: (1) one can’t consistently accept (WSP) (and that no abstractum is part of any concretum), although one can consistently accept (VWSP) instead; (2) one can consistently accept (VWSP) (and that no abstractum is part of any concretum) only if one accepts, or at least doesn’t deny, that actual concreta are quasi-gunky.

\(^{33}\)It is noteworthy, I think, that the above model shows that the Proper Parts Principle is likewise consistent with those same three claims. The Proper Parts Principle says that no two things share all the same proper parts, or, more formally: (PPP) Necessarily, for any \( x \) and \( y \), if there exists a \( z \) such that \( z \) is a proper part of \( x \), and for any \( z \), \( z \) is part of \( x \) only if \( z \) is part of \( y \), then \( x \) is part of \( y \) (Simons 1987).

\(^{34}\)That is, for any concrete \( x \) and anything \( y \) that is part of \( x \), if \( y \neq \) the One, then there is some \( z \) that is a proper part of \( y \) and such that \( z \neq \) the One.
5.1.5.2 Compositional Cost

The second objection to the null individual derives from the fact that the null individual composes everything. That fact seems odd given the qualitative diversity we find: different things have different qualities. How could they differ qualitatively if they are composed of the same things, indeed the very same single thing? One would have thought that the qualities instantiated by a composite object supervene on the qualitative properties and relations instantiated by the things (or thing) that compose it. This objection transfers over straightforwardly to the One: we of course find qualitative diversity among concreta as well. So the analogous fact with respect to the One – the fact that the One composes every concretum (§5) – seems equally odd. How could you and my hamster differ qualitatively if the two of you are composed of the same things, indeed the very same single thing?35

There is indeed a cost here, but it’s important to take note of what the Mereological Monist could still hold on to. It is true that Mereological Monism (conjoined with the obvious fact that you and my hamster differ qualitatively; I’ll henceforth leave this conjunct implicit) is inconsistent with certain supervenience theses that tie the properties of a composite object to the properties of the objects that compose it. But there are other supervenience theses in the vicinity that are consistent with Mereological Monism, and which may be adequate to capture the intuitions of the objector.36 A supervenience thesis that is indeed inconsistent with Mereological Monism is the following:

Local Supervenience on the Composers: Necessarily, for any \(x_1\) and \(x_2\) and \(ys\) and \(zs\), if (1) the \(ys\) compose \(x_1\) and the \(zs\) compose \(x_2\) and (2) there is an isomorphism from the \(ys\) to the \(zs\) that preserves quali-

35 Thanks to an anonymous referee for Philosophical Studies here.

36 For roughly the same point with regard to those views according to which the famed Lumpl and Goliath coincide, see Sider (2001a).
tative properties and relations, then \( x_1 \) and \( x_2 \) have the same qualitative properties.

Clearly enough, the conjunction of this thesis and Mereological Monism implies that you and my hamster share all the same qualitative properties, and that’s false.

On the other hand, here’s a supervenience thesis that seems to be perfectly consistent with Mereological Monism:

**Global Supervenience on the Composers:** For any two possible worlds \( w_1 \) and \( w_2 \), any isomorphism from all the simples in \( w_1 \) to all the simples in \( w_2 \) that preserves intrinsic properties and relations preserves all qualitative properties and relations period.

This thesis says that once you settle, in any world, how all the simples are in themselves and how they stand (intrinsically) with respect to each other, you settle all the qualitative facts about that world.\(^{37}\) This is consistent with Mereological Monism for all we know, since for all we know any possible world in which there is some simple concretum that is part of every concretum but which differs in some qualitative way from the actual world also differs with respect to the nature of that simple that is part of every concretum.

So there is indeed a cost of accepting Mereological Monism, which is that you can’t accept Local Supervenience on the Composers; but you can still accept Global Supervenience on the Composers, which might be all we are justified in believing anyway.

\(^{37}\)Note two things: (a) this is much stronger than the thesis for which I argued in §2.3.2.5 and employed again in §5.1.4, namely that the intrinsic properties and relations of all the concreta settle all the qualitative facts period, since the subvenience base of this thesis includes facts that are intuitively only about the simples; and (b) a more general version of this thesis, which has non-vacuous application to possible worlds (if such there be) in which there are no simples, could be formulated and would also be consistent with Mereological Monism; but it’d be more complicated.
5.1.5.3 Physicalist Cost

The third and final objection I will consider to the null individual is based on a widely held doctrine (among philosophers at least) about the denizens of our world. Many philosophers are physicalists: they hold that everything is a physical thing. It’s hard to spell out what ‘physical thing’ means exactly, but however one does so, there seems to be no physical thing that could meet the job description of the One, let alone the null individual. So on the face of it, a cost of accepting Mereological Monism is that one can’t consistently accept physicalism.

But maybe that’s just on the face of it. It is certainly true that there is no material thing that is part of everything concrete (let alone everything, period), at least not if current physics is right about the material furniture of the world. But what about immaterial physical concreta? Spacetime regions, if such there be, seem to be physical concreta - or at least physicalistically kosher - even if they are not material concreta. So, could a spacetime region be the One?

Here’s how we might motivate that idea: if spacetime exists, a natural question arises. What is the relationship between spacetime and its material inhabitants? Many answer a fundamental relation of occupation - spacetime is a vast immaterial thing and parts of it (regions) are occupied by material objects. Others (Sider 2001a; Schaffer 2009b) answer identity - spacetime is a vast thing, much of which is immaterial, but some parts of which (regions) just are material objects. Josh Parsons (2007) has suggested a third answer: proper parthood - spacetime is a vast immaterial thing and parts of it (regions) are proper parts of ordinary material objects; in particular, a material object has its location as a proper part. Now, consider the following addendum to Parsons’ suggestion: there is just one spacetime region. (If there are point-sized material objects, the sole spacetime region will have to be point-sized, at least if one can’t have a proper part larger than oneself.) If we accept Parson’s answer together with my addendum, then the single spacetime region might just be
a physicalistically kosher candidate for the role of the One (although playing the role of the null individual seems a more difficult task for a spacetime region, at least if there are abstracta).\textsuperscript{38}

Unfortunately, motivated or not, the view that there is some spacetime region that is the One – i.e., it is part of every concretum – is either obviously false, extremely misleading, or incoherent. The proponent of such a view faces the following question: is there more than one spacetime region and the One (spacetime region) is part of all of them, or is the One the only spacetime region there is? Suppose she says “the One is the only spacetime region there is” (as would be the case if Parson’s suggestion with my addendum is true). Then we might wonder: how do my desk and chair get to be differently located? It is a fact, isn’t it, that my chair is over here and my desk is over there? If there were more than one region, we could simply answer that they get to be differently located by having different regions as proper parts (or being identical with different regions, or occupying different regions). But we are supposing that there is just one region, so that answer is unavailable. The only available answers, as far as I can tell, are to deny that my desk and chair are differently located or to say that it’s just a brute and inexplicable fact that my desk and chair are differently located, not to be explained further in terms of their relations to the single region. The first disjunct is obviously false. The second one makes what she says extremely misleading: why call the thing a ‘region’ when none of the location facts seem to involve the existence of that thing? I cry foul. The physicalist seems to be allowing something into her ontology that is not physicalistically kosher, and trying to get it

\textsuperscript{38}I am ignoring the further difficulty of accommodating the One in a physicalistically kosher environment assuming the truth of (VWSP); the difficulty is apparent: if (VWSP) is true, then for any concretum \(x\) other than the One, there is something \(y\) that is a proper part of \(x\) and distinct from the One; if physicalism is true, then \(y\) will have to be a physical object. So consider an ostensibly simple physical object, like a quark: not only will it have the sole spacetime region as a part, it will have to have a vast number of other physically kosher objects as proper parts as well. But the physicalist has a hard enough time as it is accommodating the One, so I will not make it any harder by assuming the truth of (VWSP).
to pass inspection by labelling it with the innocuous ‘spacetime region’.

So what if the proponent of the view answers that there is more than one spacetime region, and the One (itself a spacetime region) is part of all of them? I’m not sure I even understand the suggestion, and I’m tempted to simply say the suggestion is incoherent, and leave it that. But I’ll try to do better and show that it’s incoherent. The following all seem to be facts about the location relation, where by that I mean the relation something bears to a region when the region “is not free” of the thing:\(^{39}\):

1. For anything \(x\) and any region \(R\), if \(x\) has a part located at \(R\), then \(x\) is located at \(R\).
2. For anything \(x\) and any region \(R\), if \(x\) is located at a part of \(R\), then \(x\) is located at \(R\).
3. For any region \(R\), it is located at itself.

But from these three facts, together with the claim that there is more than spacetime region of which the One (itself a spacetime region) is a part, some very peculiar facts follow.

First: every region is located at every region: that is, for any regions \(R_1\) and \(R_2\), \(R_1\) is located at \(R_2\).\(^{40}\)

Second: every region is \textit{entirely located} at every region, where \(x\) is entirely located at \(R =_{df} x\) is located at \(R\), and every region at which \(x\) is located overlaps \(R\) (Parsons 2007). Since every region is located at every region (the first fact), and every two regions overlap, that one is entirely located at the other straightforwardly follows.

Third: every region \textit{pervades} every region, where \(x\) pervades \(R =_{df} x\) is located at every region that \(R\) overlaps (Parsons 2007), i.e., no subregion of \(R\) is free of \(x\). Since every region is located at every region, it is of course located at every region

\(^{39}\)This is what Parsons (2007) expresses with the term ‘weakly located’.

\(^{40}\)For any regions \(R_1\) and \(R_2\), \(R_1\) has a region, the One, as a part, which (by (3)) is located at the One; so \(R_1\) is located at the One (by (1)); but the One is a part of \(R_2\), so \(R_1\) is located at \(R_2\) (by (2)).
that satisfies some further condition.

Fourth and trivially: every region is exactly located at every region (where being exactly located is just the conjunction of being entirely located and pervading). But, assuming there is more than one region, this is incoherent. How could one region be exactly located at a distinct region? This makes hash of our talk of location and regions. (I might add that if every region is exactly located at every other region, then we still have no answer to the question how it is that my chair and desk are differently located.\footnote{Suppose my chair is located at $R_1$; I assume my desk is exactly located somewhere, say $R_2$. But $R_2$ is entirely located at $R_1$. So every region at which $R_2$ is located overlaps $R_1$. But $R_2$ is a region at which $R_2$ is located (by (3)), so $R_2$ overlaps $R_1$. But since my desk is exactly located at $R_2$, it is located at every region that overlaps $R_2$. So my desk is located at $R_1$. Thus, wherever my chair is located, my desk is located. And of course one can show analogously that wherever my desk is located, my chair is located. One can’t keep them apart.})

Alas, I do not think the One can be a spacetime region. And I’m all out of ideas for physical candidates for the One. At the end of the day, and not just on the face of it, a cost of accepting Mereological Monism is that one can’t consistently accept physicalism. Indeed, in virtue of accepting Mereological Monism one is committed to the existence of something that is radically unlike all the physical concreta with which we are familiar: it is a non-physical concrete simple – and it is the only concrete simple since every other concretum has it as a proper part – and as Hudson says about the null individual, “in virtue of being a part of every point in spacetime, it has a straightforward (albeit nonstandard) claim to be (v) eternal and (vi) omnipresent.” (2006, 650) For some, I realize, that is a prohibitive cost.

5.1.6 Second Escape Route: Reject Simple

One last option for the Causal Essentialist is to reject Simple. Despite the consensus of physicists, the faithful, and a fair number of philosophical giants, the Causal Essentialist might best be served by saying that although there is universal mereo-
logical overlap between concreta, Mereological Monism is nevertheless false, because
everything, or at least everything concrete, has a proper part. The following might
be thought a point in favor of taking this route over accepting Mereological Monism:
if one were to accept Mereological Monism instead, then one would be forced to hold
that the physicists and philosophical giants are wrong on this score anyway. Pre-
sumably, no quarks, leptons, or souls would be mereological simples if Mereological
Monism were true. (And certainly no more than one of them!) So their claims cannot
be good grounds for inferring Mereological Monism from universal overlap. Anyone
who did make that inference on those grounds would be cutting off the branch they
were sitting on.

Well, I’m not sure it’s right that the claims of the physicists and philosophical
giants cannot be good grounds for inferring Mereological Monism from universal
overlap. Consider the following case: one reliable source sincerely reports that there
was a teal-colored elephant in the backyard and another reliable source sincerely
reports that there was an olive-green-colored elephant in the backyard. On the basis
of these two reports I form the justified belief that there was an elephant in the
backyard. An infallible oracle then informs me that if there was an elephant in the
backyard, it was navy-blue-colored. It is by no means obvious to me that I don’t now
have good grounds for inferring that there was a navy-blue-colored elephant in the
backyard, even though if that’s true, neither of the non-oracular reports I received,
on the basis of which I came to believe that there was an elephant in the backyard in
the first place, was true: they seem to have been onto something true. Analogously,
the physicists report that there are concrete physical objects that are mereological
simples, and some philosophers report that there are concrete non-physical objects
– souls of human beings – that are mereological simples. On the basis of these
two reports I form the justified belief that there are concrete mereological simples. I
(supposing I’m a Causal Essentialist) then learn that if there are concrete mereological
simples, then there is exactly one concrete mereological simple that is a part of all concreta. It is by no means obvious to me that I don’t now have good grounds for inferring that there is exactly one concrete mereological simple that is a part of all concreta, even though if that’s true, neither the report of the physicist nor the report of the philosopher, on the basis of which I came to believe that there were concrete mereological simples in the first place, was true: they seem (at least in some moods) to have been onto something true.

This raises knotty epistemological questions, to which I have no settled answers. So let me just say the following: even if it’s right that the claims of the physicists and the philosophers cannot be good grounds for inferring Mereological Monism from universal overlap, two replies are in order. First, it doesn’t follow from that fact that taking the route of denying Simple is any better than taking the route of accepting Mereological Monism; indeed, the Conceptual and Physicalist costs associated with accepting Mereological Monism are associated with accepting universal overlap just the same. Second, if a Causal Essentialist finds herself among the faithful – if she believes in the God of classical theism – then she might well thereby have perfectly good grounds for inferring Mereological Monism from universal overlap: as Hudson (2006; 2009) argues, the God of classical theism, being simple, non-physical, concrete, eternal, and omnipresent, seems to be an excellent candidate for the role of the null individual, and a fortiori for the role of the One. She may be out on a limb, but at least she won’t be cutting it off.

5.1.7 Cost Reckoning

So much for my enumeration of the costs. Naturally, different Causal Essentialists will reckon the costs differently. If the past is a good guide to the future, most will happily pay the price of rejecting Patchwork. But perhaps some Causal Essentialists will realize that the price of rejecting Patchwork is too steep, and that Mereological
Monism isn’t so costly after all. If it isn’t obvious already, I think they’d be right.

5.2 Lessons for Our Conundrum

Thus concludes my essay on Causal Essentialism and Mereological Monism. I trust its lessons for our conundrum can readily be extracted. I will nevertheless extract them. The upshot of §4.1 is that Phenomenal Internalism is true, a claim which plays the same role in generating our conundrum as Intrinsicness plays in the argument of my essay. The upshot of §4.2 is that Causal Constraint and Temporal Direction Constraint are both true, claims which play the same role in generating our conundrum as Causal Essentialism plays in the argument of my essay. The upshot of Chapter 3 is that Patchwork is true, a claim which plays the same role in generating our conundrum as it plays in the argument of my essay. And the argument in §2.3.2 plays the same role in generating our conundrum as my essay’s argument (in §5.1.2) does in showing that Patchwork, Intrinsicness, and Causal Essentialism are apparently inconsistent: it shows that Patchwork, Phenomenal Internalism, and Causal Constraint/Temporal Direction Constraint are apparently inconsistent. But, as I point out in my essay, those appearances can mislead if (and only if) there must be “problematic” mereological overlap where we didn’t think there was.

And there you have my solution to our conundrum: my solution is that at various points in the arguments featured in §2.3.2 I incorrectly assumed the satisfaction of the proviso in Patchwork that “if there were such instances in that arrangement, then it would be the case that for any \( x \) and \( y \), if \( x \) is a part of (an element of) one of the instances and \( y \) is a part of (an element of) another of the instances and \( x = y \), then for any intrinsic natures \( Q_x \) and \( Q_y \), \( x \) has \( Q_x \) and \( y \) has \( Q_y \) only if \( Q_x \) and \( Q_y \) are compatible.” In one case (in arguing that Patchwork implies the Delocalization of Laws), I incorrectly assumed that there wouldn’t be any overlap at all (and hence the proviso would be trivially satisfied), and in several other cases
(in arguing that Patchwork implies the Delocalization of Causation, Delocalization of Temporal Direction, and Joint Delocalization) I incorrectly assumed that the overlap there would be, would satisfy the proviso.

Now, it’s not obvious that I need to assume anything as sweeping as universal mereological overlap in order to solve our conundrum – the way a Causal Essentialist must in order to solve hers – and a fortiori, it’s not obvious that I need to assume Mereological Monism. But even if it’s not obvious, it might well be that making that assumption is the only way to avoid reintroducing mysterious necessary connections – in my terms, brute necessity-attributing propositions – yet again. Why, after all, would instances of only certain intrinsic natures have to overlap? In any case, universal mereological overlap (among concreta) provides an elegant solution to our conundrum. And whether or not that (materially) implies Mereological Monism – that is, whether or not Simple is true – Mereological Monism provides a picture that is helpful in understanding how Patchwork fails to guarantee the possibility of certain impossible states of affairs, even assuming that nomic, causal, and temporal-direction relations are intrinsic.

The picture is this: there is something concrete that is part of every concrete thing. And necessarily, there is something concrete that is part of every concrete thing: every world $w$ contains the One$_w$. And the intrinsic nature of that part de-

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42 In effect, I am noting that Patchwork might have to be refined still further, to account for certain brute necessity-attributing propositions whose truth is not ruled out by Patchwork as it stands.

43 This of course implies that there must be mereological overlap between any concreta. Why, you might ask, must there be mereological overlap between any concreta? Here’s a highly speculative suggestion: it is part of the nature of plurality that a plurality of concreta is ontologically posterior to some concretum that is part of each of the members of the plurality. Plurality “arises” not at the level of parts – as Schaffer (2010b; 2010a) has it – but at the level of sums. And this implies that for any concrete $x$s, the $x$s share a part (after all, if the concrete $x$s are more than one in number, then they must share a part, since they exist in virtue of some such part, and if the $x$s are one in number, then the $x$s naturally share a part). Note that this does not lead to the conclusion that you and my hamster are intrinsic duplicates, since you each exist in virtue of some part of each of you.

I of course would not have assumed the truth of this highly speculative explanation – indeed, I would not have assumed the explanandum, viz. that there has to be mereological overlap between
terminates, or settles, all the qualitative facts. (As I’ve noted, this follows from Global Supervenience on the Composers.) But then no intrinsic nature can be instantiated in more than one possible world. Or, at least not in more than one possible world that differ from one another qualitatively.⁴⁴ And so Patchwork ought never allow one to “extract” an intrinsic nature from its native environment, and “patch” it together with other intrinsic natures. And it doesn’t: the proviso is not satisfied for the very same reason that no intrinsic nature can be instantiated in more than one (qualitatively different) possible world.

Regardless of whether my solution takes Mereological Monism on board – indeed, regardless of whether it takes on board the idea that mereological overlap is universal – it certainly implies that there is, and must be, lots of mereological overlap where we didn’t think there was. And it implies that while Patchwork is true, the Humean worldview it is supposed to reflect is wildly mistaken. There are absolutely necessary connections between intrinsic natures, and causal, nomic, and temporal-direction relations are all intrinsic. (Patchwork aspires to accomplish the task suggested by its name, but it is a miserable failure, since the proviso more or less empties it of any content it had.) More broadly and impressionistically, the world is much less like a Lewisian mosaic than like a maze of Leibnizian mirrors.

Of course, the same reckoning of costs that I performed in the foregoing essay concreta – if I hadn’t been led there by the arguments of the previous chapters. I am engaged in what we might call ‘metaphysical reconstruction’.

(Note: I am here abandoning my professed neutrality (§1.8.1) on the question of whether there could be gunk.)

⁴⁴For suppose there were: that is, suppose there is some intrinsic nature $Q$ and some worlds $w_1$ and $w_2$ that differ qualitatively, such that $Q$ is instantiated in $w_1$ and in $w_2$. Since $w_1$ and $w_2$ differ qualitatively, the One$_{w_1}$ must have an intrinsic nature $Q_1$ that is inequivalent, and hence incompatible, with some intrinsic nature $Q_2$ that is instantiated by the One$_{w_2}$. So everything in $w_1$ has as a part exactly one simple and that simple instantiates $Q_1$ and everything in $w_2$ has as a part exactly one simple and that simple instantiates $Q_2$. But then $Q$ entails both the property having as a part exactly one simple and that simple instantiates $Q_1$ and the property having as a part exactly one simple and that simple instantiates $Q_2$, and those two properties are incompatible.
is called for with regard to our conundrum. A Humean might say the cost of accepting Mereological Monism, or even universal (or even widespread) mereological overlap, is higher than the cost of rejecting Phenomenal Internalism or Causal Constraint/Temporal Direction Constraint. Indeed, it seems to me the most promising reply a Humean could offer to my solution is the Moorean one: that she is more confident in the falsity of my solution than she is in the need for one. *Something* (other than Patchwork), she will say, is wrong with the material that generated our conundrum; either one of the theses for which I argue in Chapter 4 is false, or one of my arguments in §2.3.2 is invalid. Or, to quote the arch-Humean, viz. Hume, “Though the chain of arguments which conduct to it were ever so logical, there must arise a strong suspicion, if not an absolute assurance, that it has carried us quite beyond the reach of our faculties, when it leads to conclusions so extraordinary, and so remote from common life and experience. We are got into fairy land, long ere we have reached the last steps of our theory; and there we have no reason to trust our common methods of argument, or to think that our usual analogies and probabilities have any authority.” (1777, 57) If she says that – and I suspect she will – we will have hit “dialectical bedrock”. 
APPENDIX A

TECHNICAL REMARKS ABOUT INTRINSICALITY

In this appendix, I do three things that relate to the definitions of intrinsicality terms that appear in §1.3.2:

1. Attend to a certain complication in the definitions that is required according to actualism.
2. Prove the equivalences that I alleged follow from the definitions.
3. Remark on some consequences of the definitions.

1. Consider the first definition: \( (D1) \text{`}x \text{ is an intrinsic nature of } y\text{'} =_{df} \) Necessarily, for any \( z \), \( z \) is an exact replica of \( y \) iff \( z \) has \( x \). According to actualism, this would seem to deliver the doubly wrong result that being red and spherical and..coexisting with Charlie is an intrinsic nature of Charlie (where Charlie is a red spherical...), and being red and spherical... isn’t an intrinsic nature of Charlie, since in any world in which Charlie doesn’t exist, nothing is an exact replica of him. In order to address this, the actualist must work with a more complicated four-place primitive: \( \text{`}x \text{ in } w_1 \text{ is an exact replica of } y \text{ in } w_2\text{'} \); or, as I will assume, a two-place primitive between world-object pairs.\(^1\) We understand this primitive, I think, almost as well as we understand ‘exact replica’ in the first place.\(^2\)

So the definitions should be put as follows:

\[
(D1) \text{`}x \text{ is an intrinsic nature of } y\text{-in-}w\text{'} =_{df} \text{In any world } w_1, \text{ for any } z, z\text{-in-}w_1 \text{ is an exact replica of } y\text{-in-}w \text{ iff } z \text{ has } x (\text{all and only possible exact replicas of } y\text{-in-}w \text{ have } x)\]

\(^1\)Thanks to David Johnson for forcing me to see the need for this.

\(^2\)Although the world-object pairs which stand in this relation will have to be, according to the actualist, an ersatz surrogate of some sort (linguistic, abstract, or other) for the object itself; otherwise, the property being red and spherical... won’t be an intrinsic nature of Charlie-in-\(\alpha\) either.

After writing this appendix, I saw that Dorr and Hawthorne (Forthcoming, nt. 27) express some skepticism about the intelligibility of this four-place primitive.
(D2) ‘x is an intrinsic nature’ =df There is a world w in which there exists a y such that x is an intrinsic nature of y in w (all and only possible exact replicas of some possible have x).

(D3) ‘x is intrinsic to y-in-w’ (‘y has x intrinsically in w’) =df For any intrinsic nature x₁ of y-in-w, x₁ entails x in any world w₁, for any z, if z-in-w₁ is an exact replica of y-in-w, then z has x (all possible exact replicas of y-in-w have x).

(D4) ‘x is an intrinsic property’ =df In any world w, for any z, if z has x, x is intrinsic to z-in-w ≡ In any world w, for any y and z such that z is an intrinsic nature of y-in-w and y has x, in any world w₁, for any y₁ such that z is an intrinsic nature of y₁ in w₁, y₁ has x ≡ In any world w, for any z, if z has x, then in any world w₁, for any z₁, if z₁-in-w₁ is an exact replica of z-in-w, then z₁ has x (no two possible exact replicas differ with respect to having x).

Throughout earlier chapters, when speaking of a property as being intrinsic to something or an intrinsic nature of something, there was a suppressed relativization to a world. In every case, the world with respect to which it is to be relativized is clear from context.

2. There are three alleged equivalences, one in (D3) and two in (D4). These can be easily verified given the assumption that the exact replica relation is an equivalence relation. It partitions all the world-object pairs into equivalence classes, such that for each such class, any one of its members stands in the exact replica relation to all and only members of that class.

Thus, to say that x is an intrinsic nature of y-in-w is just to say that x is necessarily co-extensive with the property being a member of the same equivalence class as y-in-w. But the definition in (D3) of ‘x is intrinsic to y-in-w’ is just that x is entailed by every intrinsic nature of y-in-w, or equivalently, by the property being a member of the same equivalence class as y-in-w. And that is obviously equivalent to the claim that every member of the same equivalence class as y-in-w has x. Similarly, it can be easily verified that the two equivalences I allege with respect to (D4) hold, since each of the three statements is equivalent to the claim that for every world-object pair, if x is had by it, it’s had by every member of its equivalence class.

3. Assuming again that the exact replica relation is an equivalence relation that partitions all possible world-object pairs into equivalence classes, we can easily derive the following facts about intrinsicality:

(T1) For any two intrinsic natures, either they are equivalent or incompatible

(T2) For any intrinsic nature, necessarily, it is an intrinsic nature of anything that has it

(T3) Every intrinsic nature is an intrinsic property
(T4) For any intrinsic nature (of some given object in some given world), any property equivalent to it is an intrinsic nature (of that object in that world)

(T5) For any property that is intrinsic (to some given object in some given world), any property equivalent to it is intrinsic (to that object in that world)

(T6) The set of intrinsic properties is closed under negation, disjunction, and conjunction

(T7) Necessarily, for anything whatsoever, the set of properties intrinsic to that thing is closed under disjunction and conjunction

(T8) For any possible intrinsic property, there is an intrinsic nature that entails it.

(T9) For any property \( P \), \( P \) is an intrinsic nature iff for any intrinsic property \( P_1 \), \( P \) entails \( P_1 \) or it entails \( \neg P_1 \).

(T10) Necessarily, everything has an intrinsic nature.

(T11) Necessarily, for any \( x \) and any \( Q \), if \( Q \) is an intrinsic nature of \( x \), \( Q \) entails any property that is intrinsic to \( x \).
In §1.4 I claimed that \textbf{Patchwork$_3$} and \textbf{Patchwork$_4$} are equivalent. Here I provide the proof.

The proof that \textbf{Patchwork$_4$} is entailed by \textbf{Patchwork$_3$} is straightforward: by (T3), every intrinsic nature is an intrinsic property, and by (T1), any pair of non-equivalent intrinsic natures is incompatible, and hence neither entails the other; it follows further that no intrinsic nature entails the disjunction of any intrinsic natures that are not equivalent to it. [If P is incompatible with Q and incompatible with R, then it is also incompatible with Q $\lor$ R.] So any sequence of non-equivalent intrinsic natures just \textit{is} a collectively non-entailing sequence of intrinsic properties.

The argument that \textbf{Patchwork$_4$} entails \textbf{Patchwork$_3$} is as follows: let us say that ‘a sequence of intrinsic natures \textit{IN} is a \textit{specification} of a sequence of intrinsic properties \textit{IP}’ $=_{df}$ for all $i$, the $i$-th element of \textit{IN} entails the $i$-th element of \textit{IP} and precludes every other element of \textit{IP}. Not every sequence of intrinsic properties has, as a specification, some sequence of intrinsic natures, since if one of the elements in a sequence of intrinsic properties entails another one of the elements, say, then there is no possible property, and hence no intrinsic nature, that entails the former and precludes the latter. But any sequence of intrinsic properties \textit{IP} that is collectively non-entailing does have, as a specification, some sequence of intrinsic natures. For consider some arbitrary element \textit{IP$_i$} of \textit{IP}: the conjunction of \textit{IP$_i$} and the negations of every other element of \textit{IP} is an intrinsic property (from (T6)); moreover, it is a possible property since \textit{IP} is collectively non-entailing and hence \textit{IP$_i$} does not entail
the disjunction of the other elements; i.e., possibly there is something that has \( IP_i \) but lacks that disjunction, and hence lacks every other property in the sequence. But then by (T8), there is an intrinsic nature that entails that intrinsic property, and hence entails \( IP_1 \) and precludes every other element of \( IP \). A sequence of intrinsic natures can be constructed in this way that is a specification of \( IP \).

So every sequence of collectively non-entailing intrinsic properties \( \{P_1,\ldots,P_N\} \) has, as a specification, some sequence of intrinsic natures, \( \{Q_1,\ldots,Q_N\} \). And it follows from the definition of ‘specification’ that those intrinsic natures will be non-equivalent, since each one entails some property that all the others preclude. But then by Patchwork_4, it follows that for any sequence of cardinals \( \{a_1,\ldots,a_N\} \), there is a possible world in which there are exactly \( a_1 \) instances of \( Q_1 \)…and exactly \( a_N \) instances of \( Q_N \). And of course, that is also a possible world in which there are exactly \( a_1 \) instances of \( P_1 \)...and exactly \( a_N \) instances of \( P_N \).
APPENDIX C

PROOF OF IMPLICATION ALLEGED IN §2.3.2.5

In §2.3.2.5 I alleged that the fact that any two possible sequences of concreta that are (a) non-causal non-nomic duplicates and (b) such that each one exhausts the concreta, instantiate all the same qualitative properties/relations, implies Global Supervenience. Here is the proof.

I assume that necessarily, if there are concreta, then there is a sequence of all concreta. (I also assume that being all the concreta is a perfectly natural, non-causal, non-nomic relation; but that plays no substantive role. If you think that relation is not perfectly natural, then simply reformulate Global Supervenience to accommodate that.) Let B be the set of all perfectly natural non-causal non-nomic properties/relations, and let A be the set of all qualitative properties/relations. For any worlds $w_1$ and $w_2$, any function $f$ that is a B-isomorphism from the concrete domain of $w_1$ to the concrete domain of $w_2$ is such that for any sequence $X_1$ of all the concreta in $w_1$, the sequence $X_2$ of images (under $f$) of the elements of $X_1$ instantiates the relation being all the concreta there are, and for any (other) perfectly natural non-causal, non-nomic property/relation $R$, $X_1$ instantiates $R$ iff $X_2$ instantiates $R$; and so they instantiate all the same qualitative properties/relations. But since I assume that necessarily, if there are concreta, then there is a sequence of all concreta, it follows that for any worlds $w_1$ and $w_2$, such that there are concreta in $w_1$, any function $f$ that is a B-isomorphism from the concrete domain of $w_1$ to the concrete domain of $w_2$ is such that there is some sequence $X_1$ of all the concreta in $w_1$, and the sequence $X_2$ of images (under $f$) of the elements of $X_1$ instantiates all the same
qualitative properties/relations as $X_1$; and hence is such that for any qualitative property/relation $R$, and any sequence of concreta in $w_1$, that sequence instantiates $R$ iff the sequence of images (under $f$) of the elements of that sequence instantiates $R$; that is, it is an A-isomorphism. (And for any worlds $w_1$ and $w_2$, such that there are no concreta in $w_1$, it is trivial that any B-isomorphism from the concrete domain of $w_1$ to the concrete domain of $w_2$ is an A-isomorphism.)
APPENDIX D

PROOF OF IMPLICATION ALLEGED IN §3.2.3.3

In §3.2.3.3, I alleged that if my analysis of ‘x is an intrinsic duplicate of y’ is correct, and certain very plausible assumptions are true, then every intrinsic nature is equivalent to some maximal basic intrinsic property.\(^1\) Here I delineate those plausible assumptions and offer a proof of the alleged implication.

The very plausible assumptions are these:

1. There is a possible basic intrinsic property; assuming the correctness of my analysis, this is implied by the seemingly obvious fact that there are things that are not intrinsic duplicates, like me and my hamster.
2. The set of basic intrinsic properties is closed under (possibly infinitary) conjunction.
3. The set of basic intrinsic properties is closed under negation.

Here is the proof of the alleged implication: every intrinsic nature is possibly instantiated. So suppose intrinsic nature \(P\) is instantiated by some possibile \(a\); since there is a basic intrinsic property \(Q\) (assumption (1)), and the set of basic intrinsic properties is closed under negation (assumption (3)), then \(a\) has some basic intrinsic property (either \(Q\) or \(\neg Q\)); then the conjunction of all \(a\)’s basic intrinsic properties, call it ‘\(R\)’, is a maximal basic intrinsic property (assumptions (2) and (3)). Now,

\(^1\)My analysis is this:

\[x\text{ and }y\text{ are intrinsic duplicates }=_{df}\text{ for any basic intrinsic property }P,\ x\text{ has }P\iff y\text{ has }P\]

And a maximal basic intrinsic property is a basic intrinsic property that is a conjunction of all the properties in a set of properties which has the following feature: for any basic intrinsic property, either it or its negation is a member of the set.
necessarily, anything that has \( P \) is an intrinsic duplicate of \( a \); so if my analysis is correct, then necessarily, anything that has \( P \) also has \( R \).

Furthermore, necessarily, anything that has \( R \) has all and only the basic intrinsic properties that \( a \) has – that it has all of them follows trivially from its having \( R \) and that it has only those follows from its having \( R \) together with (3) – and so it is an intrinsic duplicate of \( a \), and so has \( P \).

Thus, \( P \) and \( R \) are equivalent. But \( P \) was an arbitrary intrinsic nature and \( R \) is a maximal basic intrinsic property.
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