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A Problem for Hume's Theory of Induction

RUTH WEINTRAUB

Abstract: According to Hume, the paradigm type of inductive reasoning involves a constant conjunction. But, as Price points out, Hume misrepresents ordinary induction: we experience very few constant conjunctions. In this paper, I examine several ways of defending Hume's (psychological) account of our practice against Price's objection, and conclude that the theory cannot be upheld.

1. The Problem

According to Hume, the paradigm type of inductive reasoning, or—to use his terminology (T 1.3.6.2; SBN 86)¹—“the inference we draw from cause to effect” (or vice versa), involves a *constant* conjunction. “We remember to have had frequent instances of the existence of one species of objects; and also remember, that the individuals of another species of objects have *always* attended them. . . . Thus we remember to have seen that species of object we call flame, and to have felt that species of sensation we call heat. We likewise call to mind their constant conjunction in *all* past instances. Without any farther ceremony, we call the one cause and the other effect, and infer the existence of the one from that of the other” (T 1.3.6.1; SBN 87, my italics; original italics removed).

But do we ever encounter such invariable uniformities? As Price points out,² Hume misrepresents ordinary induction. He says that we have “found, in many instances, that . . . flame and heat, snow and cold—have *always* been conjoined

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together” (EHU 5.8; SBN 46, my italics).³ But this isn’t true. I have often seen snow without touching it so as to experience the cold. I have often, similarly, failed to experience the heat of a flame I was watching. The same is true of Hume’s famous billiard balls. “It is not the case . . . that the complex impression of one billiard ball striking another is always followed by an impression of the second one’s motion. If I blink or faint or die just as the first impression is ending, the second one will never come into being.”⁴ More generally, as Price notes, “[i]t is very doubtful whether there *are* any constant conjunctions of sense-impressions.”⁵

Admittedly, Hume recognises that we sometimes infer to an effect (or cause) on the basis of just *one instance*. “[W]e may attain the knowledge of a particular cause merely by *one experiment*, provided it be made with judgment, and after a careful removal of all foreign and superfluous circumstances” (T 1.3.8.14; SBN 104, my italics).⁶ But although in these cases we do not experience a “repetition,” they are still cases of *constant* conjunctions, albeit degenerate: we generalise from evidence constituted by *positive instances only*. So this admission by Hume does not involve a retraction of the claim which Price’s observation seems to impugn.

Hume’s psychological theory of our inductive practice seems inadequate. Our inductions do not seem to be “founded on . . . our remembrance of their [cause and effect] *constant conjunction*” (T 1.3.6.4; SBN 88, original italics). Can this (surprisingly neglected?) objection be met?

What is required of an adequate response? Well, Hume’s task is psychological (rather than normative). So we are seeking (on his behalf) a theory which will correctly describe our inductive practice. It may portray us as irrational, and it may appeal to factors of which we are not aware (as does, for instance, Hume’s associationist theory, when it explains—by reference to principles of contiguity, similarity and causality—how we form complex ideas out of simpler ones).⁸

2. Imperfect Induction?

There are also, Hume recognises, less auspicious cases: “we frequently meet with instances to the contrary” (T 1.3.12.3; SBN 131). “[R]hubarb has [not] always proved a purge, or opium a soporific to every one, who has taken these medicines” (EHU 6.4; SBN 57–58). What happens when the regularity is imperfect? “A contrariety of events in the past may give us a kind of *hesitating belief* for the future . . . the mind is determin’d to pass from one object to the other; but not with so entire a habit, as when the union is uninterrupted, and all the instances we have ever met with are uniform and of a piece” (T 1.3.12.5; SBN 132–33, my italics).

An imperfect conjunction, then, gives rise to an uncertain expectation. And the degree of certainty, the vivacity of the belief, is the proportion of favourable cases: “the belief, which we have of any event, encreases or diminishes according to the number of . . . past experiments” (T 1.3.6.16; SBN 136). “If you weaken . . .

the union . . . you weaken the principle of transition, and of consequence that belief, which arises from it" (T 1.3.12.25; SBN 142). By way of contrast, "where the past has been entirely regular and uniform, we expect the event with *the greatest assurance*, and leave no room for any contrary supposition" (EHU 6.4; SBN 58, my italics).

Whenever we encounter an imperfect conjunction, we form, according to a straightforward interpretation of Hume's theory, a "hesitant" expectation. So according to the theory, we believe that the sun will *probably* rise tomorrow, and that we will *probably* die. But, of course, as Hume himself points out, we don't. "One wou'd appear ridiculous, who wou'd say, that 'tis only probable the sun will rise to-morrow, or that all men must dye; tho' 'tis plain we have no further assurance of these facts, than what experience affords us" (T 1.3.11.2; SBN 124).

There is a distinction, Hume recognises, even among inductive inferences: "many arguments from causation exceed probability, although they do not arise from the comparison of ideas" (T 1.3.11.2; SBN 124). "Proofs" are arguments which "are free from doubt and uncertainty." "Probability," by way of contrast, is "evidence which is still attended with uncertainty" (T 1.3.11.2; SBN 124). How, then, can Hume account for our bestowing certainty on some of our expectations even when the regularities on which they are based are imperfect?⁹

3. Fine-Grained Induction?

We have often seen snow without touching it so as to experience the cold. But we haven't had touching-snow impressions without cold impressions. So can't we formulate our inductions so that the recalcitrant experiences no longer constitute counter-examples?¹⁰ Well, of course we *can* restrict ourselves to projecting only experiences identified in a way which is sufficiently fine-grained so as to render them exceptionless. But we *don't*. We often accept a generalisation on the basis of experience which isn't regular. For instance, I think snow is cold *tout court*.

4. The "Community Response"

Perhaps I eliminate the "broken connexions" by relying on the experience of others. Testimony, it might be thought,¹¹ enables an individual to fill the gaps in his experience, thereby rendering his inductions compatible with Hume's account. The division of epistemological labour, which Descartes' individualistic project has beguiled us into ignoring, is part and parcel of our lives as cognizers.

This "community response" doesn't eliminate the gaps in our experience. To begin with, we don't have testimony pertaining to all the gaps in our experience. I've had very few testimonies (even indirect ones) about snow and flames I watched from a distance. Their temperature was very seldom reported to me.

The second reason for thinking that the “community response” doesn’t eliminate the “broken connexions” is that invoking the testimony of a witness adds another positive instance of the generalisation under question, but doesn’t *eliminate* the counter-example (my own experience). A reason is required for thinking that my (recalcitrant) experience may be ignored. But such an explanation will render the witness otiose. So this is no longer the “community” strategy for coping with Hume’s difficulty, and will be considered later (sections 7–10).

5. Causal Principles

Beck¹² (1978) suggests that we contend with the “broken connexions” in our experience by invoking causal principles: a) Like events have like causes, b) Like events have like effects, and c) Every event has a cause.¹³

Let us agree, for the sake of the argument, that we accept these principles.¹⁴ But how are they supposed to discriminate between seeming counter-examples which we ignore and those which we view as refuting a generalisation?

Suppose we experience an (apparent) exception to a causal generalisation, “Every X causes Y.” To comply with the first causal principle, we must suppose that Y’s always have the same cause. But this is compatible both with the truth and the falsity of the generalisation. (The latter claim is slightly less obvious. If the generalisation is false, then since X’s do not always cause Y’s, and Y’s always have the same cause, X’s *never* cause Y’s.) So the causal principle (on its own) doesn’t discriminate among putative counter-examples.

To comply with the second causal principle, we must suppose that X’s always have the same effects. But this doesn’t tell us *what* these effects are: does an X (always) cause a Y, or does it never? So, again, the causal principle is compatible both with the truth and the falsity of the generalisation. (The latter claim is slightly less obvious. If the generalisation is false, then, since X’s do not always cause Y’s, and X’s always have the same effects, X’s *never* cause Y’s.) It is easy to see that the third principle (by itself) doesn’t decide the fate of the generalisation, and neither does the conjunction of the principles.

6. Constancy and Coherence

The “apparent interruption . . . and . . . irregular appearances” (T 1.4.2.21; SBN 198) figure very prominently in Hume’s account of our belief in the continuing existence of bodies. Might not this account apply to induction as well? “[W]hen-ever we infer the continu’d existence of the objects of sense from their coherence, and the frequency of their union, ’tis in order to bestow on the objects a greater regularity than what is observ’d in our mere perceptions. We remark a connexion betwixt two kinds of objects in their past appearance to the senses, but are not able

to observe this connexion to be perfectly constant, since the turning about of our head, or the shutting of our eyes is able to break it. What then do we suppose . . . but that these objects still continue their usual connexion, notwithstanding their apparent interruption, and that the irregular appearances are joined by something, of which we are insensible?" (T 1.4.2.21; SBN 197–98).

Thus, we "have found, that the perception of the sun or ocean . . . returns upon us after an absence or annihilation . . . [so] we disguise . . . the interruption . . . by supposing that these interrupted perceptions are connected by a real existence, of which we are insensible" (T 1.4.2.24; SBN 199). Might not a similar account be given of induction? Perhaps here, too, we "disguise the interruption"?

Price¹⁵ thinks that Hume ought to have turned to his own theory of the external world so as to contend with the "broken connexions." He ought, that is, to invoke—in his account of induction—the principles of "constancy" and "coherence," which he thinks give rise to the vulgar belief "that . . . objects still continue their usual connexion, notwithstanding their apparent interruption, and that the irregular appearances are joined by something, of which we are insensible" (T 1.4.2.21; SBN 198). Hume, of course, would not find this idea congenial. He explicitly distinguishes between the inference to "the existence of body" (T 1.4.2.2; SBN 187–88) and inductive reasoning. The two "are at bottom considerably different from each other, and . . . [the former] arises from the understanding, and from custom in an indirect and oblique manner" (T 1.4.2.21; SBN 197). But since Hume fails to appreciate that the same difficulty—the "broken connexions"—attends *both* kinds of inference, we should consider whether he *ought* to embrace Price's suggestion.

How can constancy help us to contend with our gappy experience? "[A]ll those objects, to which we attribute a continu'd existence, have a peculiar *constancy*. . . . These mountains, and houses, and trees . . . have always appear'd to me in the same order; and when I lose sight of them by shutting my eyes or turning my head, I soon after find them return upon me *without the least alteration*" (T 1.4.2.18; SBN 194, my italics). A series of perceptions is constant, we understand from this passage, if it is *monotonous*¹⁶; its members, that is, resemble one another very closely (apart from the gaps). Our experience with flames is a case in point. It is a "gappy" sequence of the form {AA-A-AA}: similar complex impressions, each having as simpler constituents an impression of a flame and an impression of heat. Invoking constancy, then, Hume can claim that we fill the gaps, and assume that flames are always hot, even though we do not experience a perfect conjunction of flames and heat.

Some inductions do not conform to this pattern. Consider, for instance, the generalisation "Water evaporates when boiled." Here, the relevant impressions are *not* constant, because cause and effect are not simultaneous. The sequence is of the form {ABABA-ABA-}, where the A's are impressions of water being heated, and the

B's impressions of steam. It is, hence, *not* a case of a "constant repetition and connexion" in our experience. But coherence can help us here. We are "accustom'd in other instances to see a *like alteration* produc'd in a like time" (T 1.4.2.19; SBN 195, my italics). When "I return . . . to my chamber after an hour's absence," Hume reports (T 1.4.2.19; SBN 195), "I find not my fire in the same situation, in which I left it: But then I am accustom'd in other instances to see a like alteration produc'd in a like time, whether I am present or absent, near or remote."

Coherence is, following Price's¹⁷ interpretation again, a resemblance between *series* of impressions, possibly gappy: {AB-DE}, {ABCD-}, {ABCDE}, {A-CDE}. And our causal inferences are a (fairly simple) case in point: the pairs of (consecutive) impressions {CE} resemble one another, and we, therefore, fill the gaps in the sequence {CEC-CECE} so as to obtain the regular series {CECECECE}.¹⁸

Having explained the proposal, it is now time to assess it. The verdict, I submit, is unfavourable. To be sure, the examples are propitious. In these cases, we do infer inductively, the gaps notwithstanding. And this is in accordance with the proposal. But the examples are tendentious. Constancy and coherence do not *in general* function in the suggested way. If they did, we would consider ourselves licensed to ignore all counter-examples to a putative regularity. But of course, we don't. For instance, I often, *but not invariably*, have a migraine after eating cheese. And I don't suppose—so as to make my experience more coherent—that on those (exceptional) occasions I had an unfelt migraine!

It is not because my cheese-migraine sequence is less coherent that I do not ignore its gaps: we can suppose the frequency of migraines after eating cheese is as high as it is in the cases in which we ignore the gaps (e.g., cold snow). So it can't be coherence-as-regularity which accounts for the way we fill in gaps.¹⁹ But we shouldn't give up on coherence just yet. In the rest of the paper I will consider how it fares when given an alternative interpretation, hinted at by Hume himself.

7. Explaining the Gaps Away

Why do we suppose houses and trees exist while unperceived, whereas pains and passions do not? After all, "internal impressions, which we regard as fleeting and perishing, have also a certain coherence or regularity in their appearances" (T 1.4.2.20; SBN 195). But this coherence, Hume adds, is "of somewhat a different nature, from that which we discover in bodies." He explains the latter sort of coherence, albeit vaguely: "on no occasion is it necessary to suppose that [passions] have existed and operated, when they were not perceiv'd, in order to preserve the same dependence and connexion, of which we have had experience" (T 1.4.2.20; SBN 195). We immediately get a somewhat better idea of the "dependence and connexion" which can only be preserved by filling in the gaps: "external objects require a continued existence, or otherwise lose, in a great measure, *the regularity*

of their operation" (T 1.4.2.20; SBN 195–96, my italics). Hume means to suggest, I think, that the supposition that passions exist while unperceived has *no explanatory value*, whereas the corresponding supposition vis-à-vis houses and trees does.

Explanatory considerations also underlie a strategy for contending with gappy induction proposed by Falkenstein and Welton.²⁰ And it is, in fact—as they point out—suggested by Hume himself, in his discussion of our belief in the continuing existence of bodies. He alludes to “the turning about of our head, or the shutting of our eyes” as responsible for the breaking of the “connexion” (T 1.4.2.21; SBN 198), rendering intermittent our experience of objects. Don’t such facts explain why there are no experiential conjunctions of the kind required for induction? For instance, we don’t experience heat when watching a distant flame, because heat dissipates. We don’t see the sun rising when we are asleep, because our eyes are shut. Can’t Hume invoke our beliefs in such facts to explain why we disregard the exceptions? Rather than *observing a failure of the regularity*, he will claim, in such cases we are, in fact, *failing to observe a regularity*.²¹

This (seemingly promising) suggestion should be considered from two different perspectives, engendered by two different ways of construing statements about bodies. The philosophers believe, at least in their reflective moments, in “a double existence internal and external, representing and represented” (T 1.4.2.36; SBN 205). They “distinguish . . . betwixt perceptions and objects, of which the former are suppos’d to be interrupted, and perishing, and different at every different return; the latter to be uninterrupted, and to preserve a continu’d existence and identity” (T 1.4.2.46; SBN 211).

The “unthinking and unphilosophical part of mankind, (that is, all of us, at one time or other)” (T 1.4.2.36; SBN 205), by way of contrast, identify objects with *perceptions*. “The very image, which is present to the senses, is with us the real body” (T 1.4.2.36; SBN 205).

How is the vulgar belief about “bodies” to be understood? According to the first possibility, the vulgar believe—*de dicto*—that objects *are* perceptions: an apple, for instance, is a complex perception with perceptions of colour, taste and smell as (simple) constituents. According to the second interpretation, the vulgar believe (*de re*) of perceptions that they are (material) objects. I will defend the first interpretation by showing that it much better fits the text and rebutting an objection to it.²²

What Hume says is sometimes ambiguous as between the two interpretations. The statement that “[t]he very image, which is present to the senses, is with us the real body” (T 1.4.2.36; SBN 205) can be read both ways. But nothing he says supports the second interpretation as against the first, whereas what he says on several occasions fits only the first interpretation. Thus, he says he will understand by both terms, “object” and “perception,” “what any common man means by a hat, or shoe, or stone, or *any other impression*, convey’d to him by his senses” (T

1.4.2.31; SBN 202, my italics). The philosophers who “embrace this opinion of the double existence of perceptions and objects . . . can . . . arrive at it but by passing thro’ the *common hypothesis* of the identity and continuance of our interrupted perceptions” (T 1.4.2.46; SBN 211, my italics).

Hume’s explanation of how we come to ascribe a continuing existence to “bodies” is an important bit of textual evidence in support of the first interpretation. “We suppose that our perceptions are [not] interrupted, but preserve a continu’d . . . existence” even when they are interrupted (T 1.4.2.36; SBN 205). But “as the appearance of a perception in the mind and its existence seem at first sight entirely the same, it may be doubted, whether we can ever assent to *so palpable a contradiction*, and suppose a perception to exist without being present to the mind” (T 1.4.2.37; SBN 206, my italics). The contradiction is only apparent, Hume then argues: “every perception is distinguishable from another . . . [so] there is no absurdity in separating any particular perception from the mind” (T 1.4.2.39; SBN 207).

On the second interpretation, this (important) passage makes no sense. If the ordinary person believes *of* perceptions that they are material objects, his belief that “bodies” persist even while unperceived is clearly consistent (albeit irrational). But given the first interpretation, the belief does seem contradictory: an unperceived perception seems an absurdity. And a belief, being a vivid idea, must be consistent. So although Hume is all too happy to ascribe to us irrational beliefs, he has to show that the belief in the continuing existence of “bodies,” initial appearances to the contrary, is consistent.

The objection to the first interpretation is that it is implausible. Surely Hume doesn’t think that when the “ordinary” person talks about trees and stones, he is talking about his perceptions! The objection is specious. True, the vulgar person wouldn’t recognise this as a true description of what he means; indeed, he might not even understand the (philosopher’s) term “perception.” But he *is*, nonetheless, according to Hume, talking about perceptions. Hume invokes the Copy Principle on several occasions to correct mistakes about what some words mean. “No discovery cou’d have been made more happily for deciding all controversies concerning ideas, than that . . . impressions always take the precedency of them” (T 1.2.3.1; SBN 33). The status of a putative idea cannot always be directly decided, because ideas “are naturally faint and obscure” (T 1.2.3.1; SBN 33), whereas “all impressions . . . are strong and vivid: the limits between them are more exactly determined; nor is it easy to fall into any error or mistake with regard to them” (EHU 2.17; SBN 22). “By bringing ideas into so clear a light” (EHU 2.17; SBN 22), the Copy Principle enables us to identify some putative ideas as bogus, and (more commonly) show the real meanings of terms about which we are confused. Thus, we think causality involves an objective necessity. But, Hume insists, if we are expressing a thought when we say, for instance, “The heat caused the snow to melt,” it can only involve a regularity and an internal impression (of “determination”). And, similarly, since “’tis impossible

for us so much as to *conceive* or form an idea of any thing specifically different from ideas and impressions" (T 2.2.6.8; SBN 67, my italics), when the ordinary person uses the word "tree" intelligibly, he has in mind a tree-perception.

Having clarified the vulgar belief, we can now consider the strategy for contending with the gaps from the two perspectives, the philosophical and the vulgar. It is tempting to dismiss the strategy construed in terms of "philosophical" (material) objects very briskly. How can it be invoked, it might be objected, to explain the beliefs (and inductive inferences) of the vulgar, being couched, as it is, in terms of material objects which the vulgar do not countenance? But this dismissal is too peremptory.²³ Hume's project, remember, is to describe and explain vulgar induction. And he is allowed to invoke claims to which his objects of study—the vulgar—do not subscribe. The astronomer, by way of an analogy, invokes claims about forces and masses to explain (and predict) the motion of the planets. And, of course, the planets do not share his beliefs: they have *none*. It is enough that they have masses and exert forces on one another.

We may grant, then, that the perspective of the Humean scientist may diverge from that of his subject. But the mere *possibility* doesn't by itself vindicate the "philosophical" strategy for explaining away the inductive gaps. So let us consider how the strategy is supposed to work. It must invoke claims about spatial relations between material objects; otherwise it wouldn't be the "philosophical" strategy. But it mustn't ascribe to the vulgar beliefs about material objects. So it must suppose the vulgar proceed *as if* they believed in material objects. But this is doubly problematic.

First, it is doubtful whether Hume can countenance such beliefs. Although he sometimes suggests that the trouble with the ("philosophical") belief in external objects is merely epistemological, he is on other occasions more severe: "'tis impossible for us so much as to *conceive* or form an idea of any thing specifically different from ideas and impressions" (T 2.2.6.8; SBN 67, my italics).

Suppose, however, that we *can* conceive of material objects, and act (when inferring inductively) as if we believed in their existence. Here, the analogy with the Newtonian scientist's explanation breaks down. The Newtonian scientist doesn't have to ascribe beliefs to the Earth, because he can explain and predict its behaviour by invoking its mass and the force acting on it. The Humean scientist, by way of contrast, has no "subcognitive" analogue to masses and forces. His only explanation (and, therefore, most plausible theory) of our (inductive) behaviour, of our inferring as if we believed in material objects, is that we actually *believe* in material objects. So rather than being a philosophical attempt to explain the vulgar, the proposed strategy would make philosophers of us all!

So much for the "philosophical" strategy. In the remainder of the paper I will argue that when construed in the vulgar fashion, the strategy for contending with the gaps cannot be implemented.

8. Can the Vulgar Explain Away Recalcitrant Experiences?

The vulgar, remember, identify objects with perceptions (section 7). In the cases we need to contend with, there is a discrepancy between the way an object appears and the way it truly is: the flame is hot, although my experience (impression) is of a lukewarm flame. And the invocation of such a discrepancy seems problematic. Impressions, Hume assumes, cannot have hidden aspects. “[A]ll sensations are felt by the mind, such as they really are” (T 1.4.2.5; SBN 189). “[S]ince all actions and sensations of the mind are known to us by consciousness, they must necessarily appear in every particular what they are, and be what they appear” (T 1.4.2.7; SBN 190). And, furthermore, the perception, for the “unthinking and unphilosophical part of mankind,” is the object. So how can they fail to experience the object as it truly is?

The difficulty can be met. To begin with, as Bricke notes,²⁴ Hume elsewhere does allow for errors both about perceptions’ extrinsic (relational) and intrinsic features. As to the former kind of error, he says that “those views and sentiments, which are essential to any action of the mind, are so implicit and obscure, that they . . . are . . . unaccountable *in their causes*” (T 1.3.11; SBN 175, my italics). He countenances the second kind of error pertaining to *ideas*’ intrinsic features when he says (EHU 7.2; SBN 61, my italics) that ideas, unlike impressions, are “obscure” and “confused.”²⁵ He even suggests that error is possible about *impressions*’ intrinsic properties. “The confusion, in which impressions are sometimes involv’d, proceeds . . . from their faintness and unsteadiness” (T 1.7.4; SBN 19).²⁶

The second point we should note—by way of rebutting the objection—is that this is Hume’s *psychological* theory: he is not here concerned with the *justification* of our beliefs. So he may attribute to us the belief that we are mistaken about (some of) our impressions even if this belief is mistaken or irrational.

We are not yet home and dry. Our efforts so far have merely rendered *intelligible* the supposition that a “broken connexion” is not necessarily a counter-example to an inductive generalisation. But we need a principled way of distinguishing between observations which we count against inductive generalisations and those that we explain away (by invoking the discrepancy between appearance and reality). And, this, alas, cannot be done within Hume’s theory. The trouble is that at least some, perhaps even most, of the proposed (causal) explanations invoke spatial relations which are, I will now argue, unintelligible from the vulgar point of view. This means that Hume’s problem remains largely unsolved.

How can there be a problem attending the vulgar ascription of spatial relations to objects? They are, after all, part and parcel of the common-sense world view, which Hume takes for granted in his discussion of induction!²⁷ The answer is that Hume *shouldn’t* take for granted what his more reflective and critical discussion

subsequently shows to be untenable: a premise in an argument must be revoked if discovered—even *after being invoked*—to be indefensible. And if, as I will argue, some of the common-sense ascriptions of spatial relations are unintelligible from the vulgar perspective, they cannot figure in accounting for the way the vulgar contend (in their inductions) with gappy experience. So we need to explore suggestions which are tenable given Hume's *considered* view.²⁸

We must consider two alternative suggestions as to how perceptions are to be spatialised so as to enable the vulgar to explain away seeming counter-examples to inductive generalisations. Both turn out to be untenable.

9. The First Vulgar Way of Construing Spatial Relations

Spatial relations, according to this suggestion, obtain *within* perceptions (i.e., between their constituent perceptions). Now, the supposition that there are spatial relations within visual perceptions (and between their constituent perceptions) is eminently reasonable.²⁹ And it is, indeed, Hume's view. He thinks many minimally visible points are simultaneously and adjacently coexistent in our perceptual field. "[M]y senses convey to me only the impressions of colour'd points, dispos'd in a certain manner" (T 1.2.3.4; SBN 34). "[S]pace . . . consists of a number of co-existent parts dispos'd in a certain order, and capable of being *at once present to the sight or feeling*" (T 2.3.7.5; SBN 429, my italics). We may also grant that it is one to which Hume is entitled.³⁰ Hume's claim that there are spatial relations within tactile perceptions, as well, and none between sounds, is, perhaps, more contentious, but needn't concern us here. And let us also grant that our possession of spatially extended perceptions is enough to account—within Hume's system—for our acquisition of the idea of extension.³¹

Unfortunately, this is not enough for a solution to Hume's problem. In the explanations we are considering (seeing a flame without feeling heat, for instance), we need to invoke a *single* perception, spatial relations within which cause (and explain) the experience. But the heat isn't present in my perception: we are trying to account for its *absence* in my experience so as to account for my belief that fire is (invariably) hot.

Might there be an *unperceived* perception, in which I (my body), the visual flame and the heat are constituents? Hume thinks this is logically possible. Although perceptions are not material objects, the vulgar bodies which they constitute may (logically) exist continuously and independently of us. This is because "a perception [can] be absent from the mind without being annihilated . . . [W]hat we call a mind, is nothing but a heap or collection of different perceptions . . . supposed . . . falsely, to be endow'd with perfect simplicity and identity . . . [T]here is no absurdity in separating any particular perception from the mind" (T 1.4.2.39; SBN 207, italics removed).³²

This logical possibility is, in fact, believed by the vulgar to obtain. Bodies, they think, are constituted by (bundles of) perceptions, and exist continuously and independently of us. So might not the vulgar appeal to unperceived perceptions (with the requisite spatial relations) to explain away recalcitrant experience? Because this is a *psychological*, rather than a *normative* theory, this appeal doesn't have to be reasonable. So Hume needn't be deterred by the several "experiments" (T 1.4.2.45; SBN 210) that he takes to show that perceptions do *not* exist when unperceived.³³

This suggestion is, nonetheless, untenable. To account for my heatless fire-perception, for instance, the suggestion is that we invoke a perception of the (hot) fire and me (my body), sufficiently distant from one another. Now, perhaps there is such a (possible albeit non-actual) perception: that of a possible observer situated sufficiently near the fire, and having both me and the fire in his view. But there are less hospitable cases. If, for instance, I am in a windowless room when the sun is rising, there is no possible perception of the kind required to explain away my recalcitrant experience: no observer could perceive both me and the sun! And this time, the problem cannot be eliminated by allowing the vulgar to have irrational beliefs. Because belief is a (sufficiently) lively perception, the putative belief ascribing the requisite spatial relations (to me, the sun and the room) turns out to constitute *no* belief at all!³⁴

10. The Second Vulgar Way of Construing Spatial Relations

To solve Hume's problem, spatial relations between perceptions must be more ubiquitous. Is there, perhaps, a way of spatially locating *all* perceptions? Price seems to think so: as "[I] pass from Brighton to Hove . . . my impressions . . . are spatially continuous."³⁵ We conceive "of . . . sensibilia as existing at a certain determinate place and time."³⁶

Two objections can be levelled against Price's suggestion. *Prima facie*, the vulgar cannot suppose that perceptions are spatially located. Their perceptions have a dual role, both belonging to the mind, and (at least partly) constituting "external" objects. And if they were spatially located, the mind would—absurdly—be situated in all the places occupied by the objects it perceives.

Perhaps the objection can be met. The vulgar, remember, may be ascribed false, even irrational, beliefs. So can't the Humean scientist suppose that while identifying external objects with perceptions, the vulgar fail to draw the absurd conclusions (that, for instance, when one perceives a bed, one's mind spatially overlaps with it)? I don't think so. The inference is obvious, and the logical incompetence we are proposing to ascribe to the vulgar is so severe as to render it—even according to Hume's lights—psychologically impossible.

Here is the second objection to Price's suggestion. The supposition that *all* perceptions are spatially located (in one single space) seems unintelligible: what is

the space in which they are located? It isn't *physical* space!³⁷ Hume seems to concur. In discussing the (associative) relations that produce a "union of . . . ideas in the imagination" (T 1.2.6.17; SBN 260) giving rise to our belief in the identity of the mind through time, he says that "here 'tis evident we must confine ourselves to resemblance and causation, and *must drop contiguity*, which has little or no influence in the present case" (T 1.2.6.17; SBN 260, my italics). The reason we must eschew invoking contiguity is that we are here looking for relations between *non-simultaneous perceptions* (belonging to one mind). And whereas non-simultaneous perceptions may be similar and temporally contiguous, no sense, Hume seems to think, can be made of a perception at T1 being spatially contiguous with a perception (even of the same person) at T2.³⁸ The problem arises with extra vengeance when we consider (spatial) comparisons *across* minds. It seems nonsensical to inquire about the spatial relations obtaining even between *simultaneous* perceptions belonging to different minds.

Here is a more sophisticated suggestion—of which Hume might avail himself—as to how perceptions may be spatially located so as to allow for the requisite spatial relations. Instead of identifying a perceived vulgar object with a *present* impression, it is to be construed as constituted by a *set* of impressions ("sensibilia"), one of which is currently in one's mind.³⁹ The set includes "the multitudinous variety of perspectival and other distortions."⁴⁰ Thus, an impression of an elliptical coin will be included in the set constituting a round coin. Similarly, an impression of a bent stick will be included in the set constituting the straight stick, as will a luminous impression, corresponding to the way the stick appears in the moonlight. This phenomenalist construal of objects, Russell thinks,⁴¹ enables us to construct an objective space of perceptions on the basis of subjective appearances. We start with subjective perspectives, each of which is the momentary set of perceptions of some mind, actual or merely possible, with its own private space. A momentary common-sense thing is then identified with a set of perceptions ("appearances"), each "viewed" from a different perspective. Finally, a single 3-dimensional "objective" space is constructed, within which different perspectives and "things" are located. Each sense-datum is associated with two places in objective space. One is the place *at* which it is, and, correlatively—the object of which it is a constituent. The other is the place *from* which it is perceived.

For instance, similar coin-perceptions differing only in size will correspond to one (common-sense) coin, and, in addition, to different places in "objective space" from which the coin appears. The larger the coin appears in a perspective, the nearer the perspective is to the "objective" coin. Thus, the coin and different observers are located in a single space, with spatial relations obtaining between them.

There are three reasons for rejecting this solution to the vulgar problem. First, it is interpretively implausible. Price ascribes this phenomenalist conception of objects to Hume's vulgar.⁴² But there is no textual evidence for this attribution, and

several passages positively militate against it. “The very image, *which is present to the senses,*” Hume says (T 1.4.2.36; SBN 205, my italics), “is with us the real body.” Admittedly, he thinks that a substance can be discovered to have a new quality. Our idea of gold, for instance, initially includes “yellow colour, weight, malleableness, fusibility; but upon the discovery of its dissolubility in *aqua regia*, we join that to the other qualities, and suppose it to belong to the substance as much as if its idea had from the beginning made a part of the compound one” (T 1.1.6.2; SBN 16). But this is not a case of a misleading perception. We haven’t experienced the gold as non-dissolving prior to the discovery; we haven’t experienced it as one way or the other. And, furthermore, Hume lapses into a more austere, Berkeleyan conception, according to which different senses provide ideas of *distinct* objects. Hearing the noise of a door without seeing it is a case in which the visual image of the (moving) door is an unperceived object, belief in whose existence is of the sort he is engaged in explaining (T 1.4.2.20; SBN 196). In hearing the sound, he doesn’t perceive a door which also has (unperceived) visual characteristics, but rather, an object which only has auditory ones.⁴³

The second reason for rejecting the (phenomenalist) view as a way of vindicating Hume’s (psychological) theory of induction is that it seems too sophisticated to ascribe to the vulgar, and we are attempting—on Hume’s behalf—to account for their inductive practice. And, to repeat the considerations adduced (section 7) against the “philosophical” version of the proposed strategy, it is not enough that the scientist should understand the view. If it is to be invoked in an explanation of the vulgar, they must be assumed to be behaving (inductively inferring) *as if* they held it themselves. But the best (indeed, only) explanation for such behaviour is that they actually do hold the view.

The third, and final, objection is that this (ingenious) construction does not show that perceptions are spatially located. Of course, we can assign to each perception three co-ordinates. But this no more shows it to be spatially located than does our assigning each person a number (the number of letters in his surname, e.g.) show that people are either odd or even. To be sure, we do employ the considerations Russell invokes in his construction to determine the spatial location of objects. If one coin seems smaller than another, then—assuming that coins have the same size—it is more distant from us. But this only makes sense if we are spatially locating *material* coins. And Russell reminds us that “permanent things, space, and time have ceased to be . . . part of the bare bones of the world, and are now admitted to be constructions.”⁴⁴

Constructions are perfectly legitimate, and Russell’s “things” may be as real as their constituents (sense-data). But we should be careful when ascribing properties to our logical constructions. One set of appearances may be more inclusive than another, but it cannot be close to it, just as one number cannot be more vivid or softer than another.

We have now seen that there are strong objections, on Hume's "vulgar" theory, to ascribing perceptions—and hence objects—any spatial location. And since they aren't spatially located, I conclude that there are no spatial relations between them (or sets of them), and the causal explanations which purport to enable us to dismiss (some) counter-examples to generalisations cannot invoke them, as the strategy we are considering for contending with the gaps in our experience will have us do.

The second vulgar strategy for explaining away recalcitrant experiences fails. True, some of the seeming counter-examples can straightforwardly be explained away. A green emerald will not appear green to a colour-blind person, but his defect renders his observations irrelevant to the generalisation "All emeralds are green." But these kinds of case seem to be fairly rare. Most of the explanations ("The flame doesn't feel hot because it is too distant," "The snow looks pink because I am wearing pink spectacles") do invoke—illicitly from the vulgar point of view—spatial relations. Hume's (psychological) theory of induction, I conclude, cannot be salvaged.

NOTES

I am very grateful to the editors for insightful and constructive comments, thanks to which the paper is much better than it would otherwise have been.

1 References to the *Treatise* are to *A Treatise of Human Nature*, ed. David Fate Norton and Mary J. Norton (New York: Oxford University Press, 2000), abbreviated "T" and cited by Book, chapter, section, and paragraph, followed by page numbers from *A Treatise of Human Nature*, ed. L. A. Selby-Bigge, 2nd ed., revised by P. H. Nidditch (Oxford: Clarendon Press, 1978), hereafter "SBN."

2 H. H. Price, *Hume's Theory of the External World* (Oxford: Clarendon Press, 1940), 7.

3 References to the *Enquiry* are to *Enquiry Concerning Human Understanding* ("EHU"), ed. Tom L. Beauchamp (Oxford: Clarendon Press, 2000), cited by section and paragraph, followed by page numbers in *Enquiry Concerning Human Understanding*, ed. L. A. Selby-Bigge, 3rd ed., revised by P. H. Nidditch (Oxford: Clarendon Press, 1975), hereafter "SBN."

4 Price, *Hume's Theory of the External World*, 7.

5 *Ibid.*, original italics.

6 I am grateful to an anonymous referee for pressing me to consider this point.

7 As far as I am aware, only Falkenstein and Welton discuss the problem in detail. See Lorne Falkenstein and David Welton, "Humean Contiguity," *History of Philosophy Quarterly* 18 (2001): 279–96. Price and Baier hint at a solution. See Price, *Hume's Theory of*

the External World; and Annette Baier, *A Progress of Sentiments* (Cambridge, MA: Harvard University Press, 1991), 120.

8 I am grateful to the editors and an anonymous referee for pressing me to consider “non-rational” (i.e., irrational and arational) accounts.

9 Hume recognises yet another kind of less auspicious case, in which the observed regularity *is* perfect, but inadequate for complete confidence in the generalisation. Thus, an Indian prince, who has always lived in a warm climate, is justified in “refus[ing] to believe the first relations concerning the effects of frost [i.e., water freezing],” but complete *certainty* that water never freezes would be rash for him. The freezing of water is not “contrary to his experience” or “miraculous”; it is merely “marvellous,” “amazing,” “not conformable to his experience” (EHU 10.8; SBN 113). He is reasoning—by analogy—about an unfamiliar situation, which imperfectly resembles the one he has experienced. “If you weaken . . . resemblance, you weaken the principle of transition, and of consequence that belief, which arises from it” (T 1.3.12.2; SBN 142).

10 I am grateful to the editors for suggesting this response.

11 See Price, *Hume’s Theory of the External World* and Baier, *Progress of Sentiments*, 120.

12 See Lewis White Beck, “A Prussian Hume and a Scottish Kant,” in *Essays on Kant and Hume* (New Haven: Yale University Press, 1978).

13 The first two principles jointly constitute Hume’s fourth rule “by which to judge of causes and effects” (T 1.3.15.6; SBN 173). Hume endorses the third principle when he isn’t being a sceptic, although he thinks it cannot be established a priori.

14 Can’t similar events have different causes? See John L. Mackie, *The Cement of the Universe* (Oxford: Clarendon Press, 1980); and Nathan Brett, “Hume’s Debt to Kant,” *Hume Studies* 9 (1983): 59–73.

15 Price, *Hume’s Theory of the External World*, 8.

16 *Ibid.*, 60.

17 *Ibid.*

18 Constancy, according to Price, is a special (“monotonous”) case of coherence.

19 A similar example, involving a gappy sequence of qualitatively identical stretches of external impressions, can be used to impugn Hume’s account of our belief in “bodies.” “My bed and table,” Hume reports (T 1.4.2.18; SBN 194–95), “present themselves in the same uniform manner, and change not upon account of any interruption in my seeing them.” They form a constant, albeit gappy, sequence of (complex) impressions, AA--AAA-A. And that is why Hume supposes they exist even when he does not perceive them. But suppose he were to return to his room and see only his table. His impressions would still be constant, but with an additional gap, an impression of a table unaccompanied by a bed. So he ought to believe that even while he only perceives the table, the bed is nonetheless there.

20 Falkenstein and Welton, “Humean Contiguity.”

21 See Price, *Hume’s Theory of the External World*, 56; Baier, *Progress of Sentiments*, 113; Falkenstein and Welton, “Humean Contiguity,” 289.

22 I am grateful to the editors and the anonymous referees for pressing me to consider this question, which most commentators do not address. Fogelin and Rocknak espouse the first interpretation. See Robert Fogelin, *Hume's Scepticism in the Treatise of Human Nature* (London: Routledge and Kegan Paul, 1985), 67; Stefanie Rocknak, "The Vulgar Conception of Objects in 'Of Skepticism with Regard to the Sense,'" *Hume Studies* 33 (2007): 67–90.

23 I am grateful to the editors and the anonymous referees for pointing this out to me.

24 John Bricke, *Hume's Philosophy of Mind* (Princeton: Princeton University Press, 1980), chap. 7.

25 But contrary to what he says, he doesn't really exploit the greater clarity of impressions so as to derive conclusions about putative ideas. Instead of systematically examining all his impressions, he adduces an *argument* as to why there can be no such impression. For instance, none of the senses provides an impression of necessity.

26 But this is not his considered opinion. He is here desperately attempting to uphold—in the face of seeming counter-evidence—his claim that impressions are determinate.

27 I am grateful to the editors and the anonymous referees for pressing me to consider this point.

28 Smith notes a similar reversal in Hume's attitude to the self. He first (T 1.4.6.2; SBN 251–52) denies being aware (having an impression) of himself, but later (T 2.1.11.4; SBN 317) says it is "evident, that the . . . impression of ourselves is always intimately present with us." If the latter view is Hume's considered opinion, he would have to revise what he'd previously said. Alternatively, if, as Smith thinks, Hume's considered view is that we do *not* have an impression of the self, he shouldn't rely—in his account of the passions—on its existence. See Norman Kemp Smith, *The Philosophy of David Hume* (London: Macmillan, 1941), 555–58.

29 This rebuts Huemer's argument against sense-data. "In perception," he reasonably claims "[we are] aware of things with spatial properties (things with shapes, sizes, and spatial relations to each other)." And, he continues, if we cannot invoke material objects, we must (absurdly) assume that sense-data (if any) are spatially located so as to account for the spatial nature of our experience. Since perceptions must, but cannot, be spatially located, the antinomy they engender shows, Huemer thinks, that there are no such things. But the second step in the argument is fallacious. We *can* account for the spatial character of our experience without assuming that perceptions are *themselves* spatially located: the spatial extension of, and spatial relations between, elements *within them* suffices. See Michael Huemer, *Skepticism and the Veil of Perception* (Lanham: Rowman and Littlefield, 2001), 150.

30 Annand imputes to Hume the claim that *no* two impressions are co-existent. If that were so, then we would never have a compound impression within which simpler constituents were spatially related to one another. But the ascription is based on a misinterpretation of Hume's claim that "time . . . consists of different parts . . . [which] are not co-existent" (T 1.2.3.8; SBN 35–36). The idea of time depends on there being *some* non-simultaneous impressions. It doesn't require—and Hume nowhere suggests

that it does—that no two impressions in the temporal order can be simultaneous. See M. R. Annand, “An Examination of Hume’s Theory of Relations,” *Monist* 40 (1930): 581–97, 589.

31 Kemp Smith thinks that Hume’s treatment of the ideas of space and time violates the Copy Principle, there being, as Hume himself admits, *no* impressions of either space or time. See Norman Kemp Smith, *The Philosophy of David Hume*, 279–80. Frasca-Spada agrees, but claims the principle is not meant to be exceptionless. See Marina Frasca-Spada, *Space and the Self in Hume’s Treatise* (Cambridge: Cambridge University Press, 1998). In response, Garrett suggests, echoing Hume himself (T 1.2.3.5; SBN 34), that the ideas are *abstract*. “[A]lthough there is no *separate* impression of space, every spatially complex impression is an impression of space . . . every idea of space . . . is an idea that has been copied from previous impressions.” See Don Garrett, *Cognition and Commitment in Hume’s Philosophy* (Oxford: Oxford University Press, 1997), 52–54, original italics. And Falkenstein elaborates: “the idea of time is formed by identifying some common manner in which simple impressions are disposed within different compound impressions.” See Lorne Falkenstein, “Hume on Manners of Disposition and the Ideas of Space and Time,” *Archiv für Geschichte der Philosophie* 79 (1997): 179–201, 182.

32 The move from the supposition that a perception needs no underlying substance to its being capable of existing outside the mind (i.e., unperceived) is fallacious. That a given perception can be detached from the collection with which it is now associated doesn’t show that it won’t then belong to a mind. Since a mind is just a collection of perceptions, even a single perception might constitute a (very simple) mind.

33 But *should* he, perhaps, be discomfited by the fact that the view he is ascribing to the vulgar *seems*—even if it isn’t really—a “palpable contradiction” (T 1.4.2.37; SBN 206)? Can they be *that* irrational, Bennett wonders? See Jonathan Bennett, *Locke, Berkeley, Hume* (Oxford: Clarendon Press, 1971), 346. The answer is that the contradiction may not be hidden: this is a case in which meaning is transparent.

34 We can now see that the problem is much more general, and not specific to gappy induction. It seems as if Hume’s vulgar cannot believe in spatially located objects, at least not unrestrictedly. I am grateful to the editors for pointing this out.

35 Price, *Hume’s Theory of the External World*, 91.

36 *Ibid.*, 190.

37 Jackson thinks perceptions are spatially located. See Frank Jackson, *Perception* (Cambridge: Cambridge University Press, 1977), 81–87. But this is because they exist *in addition* to material objects, and are located alongside them in *physical space*. As Anderson notes, Hume, too, sometimes talks in this vein. See Robert F. Anderson, “The Location, Extension, Shape, and Size of Hume’s Perceptions,” in *Hume: a Re-evaluation*, ed. Donald W. Livingston and James T. King (New York: Fordham University Press, 1976). In explaining how we acquire the idea of extension (T 1.2.5.20; SBN 60–61), Hume suggests that ideas are located in the brain: “the mind is endow’d with a power of exciting any idea it pleases; whenever it dispatches the spirits into that region of the brain, in which the idea is plac’d; these spirits always excite the idea, when they run precisely into the proper traces.” In explaining how malice and envy are aroused (T 2.2.8.3; SBN 372), he suggests that “the image and idea of the object are . . . equally extended in the retina, and in the brain or organ of perception.” But this is not Hume’s

considered view. The only things we can know, or even intelligibly talk about, according to Hume's more judicious pronouncements, are perceptions: "[T]he relation of cause and effect can never afford us any just conclusion from the existence or qualities of our perceptions to the existence of external continu'd objects" (T 1.4.2.54; SBN 216). And "'tis impossible for us so much as to conceive or form an idea of any thing specifically different from ideas and impressions" (T 2.2.6.8; SBN 67). And more importantly, even if *qua* theorist Hume is entitled to believe in the existence of physical objects in general, and brains in particular, he cannot ascribe such beliefs to the vulgar (so as to account for their inductive practice).

38 Patten, Stroud, and Garrett, too, interpret Hume along these lines. See S. C. Patten, "Hume's Bundles, Self-Consciousness and Kant," *Hume Studies* 2 (1976): 59–75, 74n7; Garrett, *Cognition and Commitment in Hume's Philosophy*, 254n8; Barry Stroud, *Hume* (Routledge and Kegan Paul, 1977), 260n1.

39 See Bertrand Russell, *Our Knowledge of the External World*, 2nd edition (London: Unwin, 1926), chap. 3; Price, *Hume's Theory of the External World*, 93.

40 Price, *Hume's Theory of the External World*, 99.

41 Russell, *Our Knowledge of the External World*, chap. 3.

42 Price, *Hume's Theory of the External World*, 100.

43 Price admits that the attribution doesn't fit the text, but thinks it is justified, because it better fits the view of the "plain man [who] . . . says 'That's the cat' when he sees it through uneven glass, or reflected in a cylindrical mirror." This is taking the principle of charity to an absurd extreme. There are here two distinct overzealous applications of the principle. The phenomenalist view, Price thinks, is plausible, "a most promising and attractive theory of the External World," so we must ascribe it to the "plain man." And since this ascription is plausible, we must suppose Hume to have made it. See Price, *Hume's Theory of the External World*, 100, 105.

44 Russell, *Our Knowledge of the External World*, 109.

