

the existence of such things for granted in many contexts; but they are puzzling. The numeral “2,” for example, is rounded at the top and flat on the bottom, so it has a shape. But if we ask how big it is, the question obviously has no answer. According to our ordinary ways of thinking, then, the numeral is a thing with a shape but no size! Worse, when we consider the many ways in which tokens of the numeral can differ in shape—2, 2, 2, 2,—we must conclude that even if the numeral has some sort of shape, it has no *particular* shape.

Exercise: Using these materials (or others), construct an argument for the claim that types do not exist. Then imagine how Rosen might respond.

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A THING AND ITS MATTER

Here is a small wooden box. I want you to guess its contents, based on the following clues. Clue 1: There is a piece of copper in the box. Clue 2: Everything in the box is the exact same size, shape, weight, and appearance. Clue 3: Everything in the box is in the exact same place. Clue 4: If you were to open the box and inspect its contents, you would say it had one thing in it.

The first clue tells you that the box contains at least a piece of copper, call it Cop. The second suggests that the box contains nothing but pieces of copper, all very similar to Cop. The possibility of several pieces of copper is eliminated by the third clue. Probably, then, the box has just Cop in it. This hypothesis is confirmed by the fourth clue. It looks like the box contains just the one piece of copper.

Now consider another box. The clues this time are different. Clue 1*: The box contains something rare and valuable; and it contains something common and inexpensive. Clue 2*: The box contains something very old along with something relatively new. Clue 3*: The box contains things made in different ways out of different materials. Clue 4*: Experts who have inspected the box’s contents tend to agree that it contains more than one thing.

This box has *things* in it—more than one. You might suspect, copper being common, inexpensive, and old, that one of them is our old friend Cop. But Cop has company. There is an unidentified further item X, about which we know mainly that it is rare, valuable, and a relative youngster compared to Cop.

Now I'm going to tell you something that may strike you as ridiculous. The first box, which seemed to contain just the one thing, and the second, which seemed to contain two or more, are in actual fact the same. You have given incompatible answers, then, to a single question, namely, *what is in the box?* Not a very promising start to your career in metaphysics.

Why should this seem ridiculous? Well, clues 1–4 don't sit very well with clues 1*–4*, and that's putting it mildly. The box supposedly contains a thing *X* which is the same size, shape, weight, and appearance as a certain piece of copper, and is sitting in the exact same place as that piece of copper, but is nevertheless distinct from the piece of copper. How is that possible? What is this mysterious *X* that's invisible to ordinary mortals (by 4) but reveals itself (by 4*) to the "experts"? Who are these experts, anyway? Since when does expertise give you super-vision?

I hate to brag, but the "experts" here are metaphysicians like me. They're the ones who have thought the hardest about material objects and how to count them. Thinking doesn't improve your eyes, exactly, but it does enable you to see more, by teaching you how to interpret the scene already before you. (Compare the way that musical training lets you hear more, without improving your score on a hearing test.)

The question is, what is this additional item *X* that, although outwardly indistinguishable from Cop, is seen by (most) metaphysicians as distinct from Cop? You're going to kick yourself when I tell you, because it's something very familiar. The extra thing is a U.S. penny. Call it Pen. Pen is the penny that came into being when, one fine day in 1909, Cop was pressed at the U.S. Mint into a certain familiar shape.

Now everything falls into place. Pen is the same size, shape, weight, and appearance as Cop simply because it is (and always has been, since that day in 1909) *made of* Cop. They are differently constituted because Pen was and is made of Cop, while Cop is *not* made of Cop; a thing is not made of itself. They are differently made because Pen was made in 1909 according to a design by a Lithuanian sculptor named Victor David Brenner. Cop was made billions of years earlier, according to a design by God. Pen is rare owing to the appearance on it of Brenner's initials (VDB). Cop is common because it is a regular old piece of copper. It may perhaps be in a rare condition, the condition of composing a 1909-S VDB penny. But that doesn't make Cop itself rare, any more than being the one piece of copper on Mount Everest would. Pen is valuable because it is rare. A good 1909-S VDB penny is worth several thousand dollars. The amount of copper in Cop can be had for a few cents.

Metaphysicians (not all, but most) think the box contains two (or more) items, I suggested. I should have said that lots of metaphysicians think this. Some deny it: "one-thingers," they're called, or "monists." Monists do not deny that the box contains Pen, or that it contains Cop. It is just that Pen and Cop are the very same item. "They" are like water and H₂O, or Ludacris and Chris Bridges.

There are lots of phenomena monists can point to as supporting their view. It is not just that Pen and Cop are so exceedingly similar. If they are really distinct, why would any ordinary person say there's just one thing in the box? If they are really distinct, shouldn't it be possible to pull them apart and send them to their separate corners? Why can't we take Pen to Venice while leaving Cop at home in Colorado? Or, given that this is not possible—Pen and Cop are inseparable—shouldn't the

collector who purchases Pen be asked to pay again for Cop? And yet this never occurs. If we put Pen and Cop on the scale together, we find that they weigh 3.11 grams. Shouldn't it be 6.22 grams, if there are really two of them?

Of course, there are lots of phenomena that pluralists can point to as well, as we just saw. Pen is more valuable than Cop, Cop is much older than Pen, they are differently made, and so on. Another seeming difference between them is this. Imagine that someone is interested in purchasing Cop; they want, let's say, to melt it down and reshape it into a copper hatpin. Cop would still exist in the hatpin scenario. It would merely have taken on a different shape. The same cannot be said of Pen, however. A penny cannot assume the shape of a hat pin. To be melted down and thoroughly reconfigured would mean the end of Pen's life.

It's a real conundrum, then. The data are genuinely equivocal; they point in two directions at once. Whatever we ultimately decide about Pen and Cop, we will have some explaining to do; we will have to explain away the data appealed to by the other side. This may sound discouraging, but it in fact suggests a way forward. Our decision ought to be guided by who can best explain away the other side's data. Which is more puzzling: why we would have guessed "two," when the answer was really "one," or why we would have guessed "one," when the true answer was "two"?

To come finally to what I think, I think it is easier to explain why we would *undercount* than why we would *overcount*. There is no huge mystery about how someone could fail to pick up on a super-subtle distinction between otherwise indiscernible objects (and the distinction between Pen and Cop is nothing if not super-subtle). This is so unremarkable a failure that we even have a name for it; one falls into an "understandable confusion."

If there's a similarly familiar term for the opposite mistake, of construing one thing as two, I don't know what it is. And normally when this happens, there's a perfectly simple explanation for it: Superman and Clark Kent present such different appearances and we seem to encounter them on different occasions. Nothing like that is happening with Pen and Cop. They are encountered on the *same* occasions, and are virtually indiscernible on those occasions. If the pluralist nevertheless sees a difference, that suggests she is looking past the appearances rather than just acquiescing in them.

The pluralist's error would be an error of *commission*; those are harder to explain away. But maybe not impossible. Sometimes a thing can present different appearances on the *same* occasion, depending on the perspective we take.

Imagine we are watching a unicyclist from opposite sides of the street. You name the wheel you see "Lefty," because you are looking from the rider's left; I name the wheel I see "Righty." If you ask me which way Righty is turning, I will say it is turning clockwise; if I ask you which way Lefty is turning, you will say it is turning counterclockwise. What's more, both of these answers are correct! I wouldn't dream of correcting you, nor you me. And yet, Righty and Lefty are one and the same wheel.

How can that be, you ask, when they are spinning in different directions? The one unbreakable law of metaphysics is "the indiscernibility of identicals," also known as Leibniz's Law:

(LL) x is identical to y only if x and y have the same properties.

This seems to imply that Righty cannot be Lefty, after all; for only one of the two is turning clockwise. At this point, in fact, we might begin to wonder how anything can be identical to anything. I am not the Little Steve who used to live in my parents' house in Toronto, for he attended Sheppard Avenue West Public School, while I teach at MIT. Clark Kent is distinct from Superman, because he is a mild-mannered reporter, while Superman is the Caped Crusader.

Now, clearly something has gone wrong here. Lefty really is the same wheel as Righty, Clark Kent really is Superman, and I really am Little Steve. Does this mean there is something wrong with Leibniz's Law?

Not at all; it's just that we were misapplying it. We were assuming that the only reason things would be described differently is that they differ in their properties. But sometimes the different descriptions reflect just a difference in the perspective taken. Righty is turning clockwise *from my vantage point*; but then so is Lefty. Little Steve went to public school *in 1967*, but then so did the author of this article. Clark Kent is in fact a caped superhero; that's just not how we think of him when we think of him as Clark Kent. If these claims sound funny, it's because the two names conjure up alternative lines of sight, ones that it is difficult to maintain at the same time.

This gives the monist a possible comeback. Pen and Cop *seem* different; there is no denying that. But so they would, if the two names conjured up distinct perspectives on one and the same object. Let that putative object be *Pop*. Pop strikes us as rare, the monist says, when we think of it as a 1909-S VDB penny, common when we think of it as a piece of copper. She might add that it's difficult to think of it both ways at once, just as it's difficult to watch a wheel from both sides of the street. But it's the same item either way. Pluralists have been taken in by a trick of perspective.

The monist is not taking issue with Leibniz's Law; she agrees Pen and Cop are distinct *if* they differ in their properties. She simply thinks that their properties are exactly the same. This idea could work in principle, but it has to be handled with care. Otherwise what is to prevent us from saying, of any two things, that they only *seem* different because of our changing perspective on them? Suppose with the monist that Cop = Pen (= Pop). Still, these are *clearly* not identical to the box they (it?) came in.

Ah, but we can imagine a super-monist who holds (ridiculously) that Cop = Box. The monist protests that that can't be right, since Cop is *in* Box, while Box is not in Cop. But this might seem hypocritical. After all, the monist's claim that Cop = Pen was questioned on a similar basis: *that can't be right, since Cop constitutes Pen and not the other way around*. And the monist turned a deaf ear to that objection. To defend herself against the charge of hypocrisy, the monist needs to tell us how it's determined which apparent differences are to be explained away as mere tricks of perspective.

The paradigm here is Righty and Lefty. Offered the choice between "Righty turns clockwise, period" and "Righty turns clockwise when viewed from the right side of the street," the second sounds *better*, in the sense of closer to what we meant all along. Let's say, then, that

we've got a merely apparent difference when "x is F from perspective P, and y is not F from perspective Q" sounds better — closer to what we meant all along — than "x is F, period, and y is not F, period."

(In the case of relational differences, substitute “x bears R to y” for “x is F,” and “y does not bear R to x” for “y is not F.”) This helps the monist in her battle with the super-monist, because when we compare

- (i) “Pen is in Box from this perspective; however, Box is in Pen from that other one.”

to

- (ii) “Pen is in Box, period, and Box is not in Pen, period.”

the first sounds absolutely ridiculous, while the second sounds absolutely fine. The question is, does it help the monist in her battle with the pluralist? That depends on which we prefer:

- (i) “Cop constitutes Pen, judged from this perspective, while Pen does not constitute Cop, judged from that other perspective.”

- (ii) “Cop constitutes Pen, period, while Pen does not constitute Cop, period.”

It appears that (i), far from clarifying the meaning of (ii), is in fact an obscure and unnecessary twist. To that extent, the monist loses her battle with the pluralist over whether Pen and Cop are “really” different or only apparently so.

We have shown, at most, that pluralism is the “intuitive” view — the one that best respects our intuitive judgments on these matters. This is the beginning of the debate, though, not the end. Some monists will insist that they *can* explain away pluralist intuitions. They think they possess a strategy superior to the one set out above. One can’t reject this out of hand; every explaining-away strategy has to be considered on its own merits. I don’t know, however, of a strategy that does markedly better than the one we have looked at.

A better monistic objection is this. Intuitions are not a good basis for theory-building, anyway. They are commonsensical, to be sure. But that doesn’t mean they’re reliable. Common sense is the distillate of ancient superstitions and prejudices. Everyday intuitions embody, in Bertrand Russell’s phrase, “the metaphysics of the Stone Age.” Is this really where we want to turn for guidance about the real, underlying nature of things?

No one has ever won a Nobel Prize for investigations into the commonsense view of pennies and pieces of copper, or missed out on one by making claims that did not fit well with ordinary ways of thinking. (Imagine complaining to Einstein that relativity theory conflicts with “what we all know” about simultaneity.) Nobel Prizes are won by people who pull the curtain aside to reveal truths we had no idea of — truths that, in the popular metaphor, reflect the way things are in themselves.

Let it be that physicists have no use for the distinctions postulated by pluralists. The question is what conclusion to draw from this. It would be one thing if the distinctions were physically untenable. You might indeed have worries on this score. Wouldn’t Pen-and-Cop weigh 6.22 grams, rather than 3.11, if they were distinct items? “Distinct” can mean non-identical or it can mean disjoint (non-overlapping).

Pen and Cop would have to be distinct in the second, stronger sense for the prediction to be in order. (It would be “double-counting” to add in the weight of overlapping items twice.) The pluralist maintains only that they are weakly distinct, that is, there are two of them rather than one.

The question is, how much should it bother us if physicists do not postulate a distinction between Pen and Cop? I don’t see why it should bother us at all. Neglecting to postulate a thing is not the same as postulating its *non*-existence! Consider an analogy. Wars, fingernails, and cupcakes do not loom large on the physicist’s research agenda. This is not taken, even by them, to decide the issue of their reality. Take again Einstein. He was a pacifist. “Nothing will end war,” he said, “unless the people themselves refuse to go to war.” Why worry yourself about this, if wars are not, in your view, there in the first place? Philosophers can hitch their wagon to science, if they like. But they should not pretend that they are only following the scientist’s lead here. Distinctions do not have to be physically fundamental to be fully real.

TEST YOUR UNDERSTANDING

1. Explain and illustrate Leibniz’s Law.
2. Give a fresh example to illustrate the debate over “monism” that Yablo discusses. Construct an explicit argument, based on your example, for the conclusion that two physical objects can be in the same place at the same time.

NOTES AND QUESTIONS

1. Yablo argues that when we have a rare 1909 penny—PEN—made of a certain piece of copper—COP—then PEN and COP are not literally the same object, even though they exist in exactly the same location. The main arguments are applications of Leibniz’s Law:

PEN is rare/valuable/less than 200 years old.
 COP is *not* rare/valuable/less than 200 years old.
 Therefore, PEN \neq COP.

But consider the following **argument** of the same form:

Clark Kent wears glasses.
 Superman does not wear glasses.
 Therefore, Clark Kent \neq Superman.

It’s not hard to say where the second argument goes wrong. The argument is **valid**, but one of the premises is false. Superman *does* wear glasses sometimes—when he’s dressed up as Clark Kent. The premise is superficially plausible, but as we think about it we can see that it’s not strictly true.

Now consider a similar response to Yablo's arguments. Are we sure that COP isn't rare? For an object to be *rare* is for it to be an instance of a kind of which there are relatively few examples. And COP is an instance of such a kind: there are very few pieces of copper in the shape of a 1909-S VDB penny. Are we sure that COP is not *valuable*? The value of a thing depends on how much people are willing to pay for it given its condition, and people are willing to pay thousands of dollars for COP so long as it's in the shape of a 1909-S VDB penny. (It would be less valuable if it were melted down; but that doesn't mean that it isn't valuable as it is.)

Exercise: Review the arguments Yablo gives for distinguishing the penny from the copper and ask whether they can all be resisted in this way. What is the best argument of this form? Can it be resisted? If so, what does this imply for Yablo's position?

For a sampling of responses to the problem raised in Yablo's paper, see M. Rea, ed., *Material Constitution* (Rowman and Littlefield, 1997).

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SCIENCE AND METAPHYSICS

Metaphysicians seek a general account of what exists. So do scientists. One would therefore expect metaphysics to be continuous with science, and for scientific theories to illuminate metaphysical questions.

The history of ideas bears this out. Early Greeks such as Thales and Heraclitus and Empedocles¹ founded a tradition of inquiry that is both scientific and philosophical. Atomism began as speculation about the nature of the physical world² Descartes and Leibniz³ made important contributions to both physics and metaphysics. Newton⁴ described his discipline as "natural philosophy." Kant's theory of space and time⁵ was

1. Thales (c. 624–546 BCE), Heraclitus (c. 535–475 BCE), and Empedocles (c. 490–430 BCE) were among the first philosophers to seek general principles for the explanation of natural phenomena.

2. Atomism, the view that matter is composed of minute indivisible particles, was first propounded by Leucippus and Democritus in the fifth century BCE.

3. René Descartes (1596–1650) and Gottfried Leibniz (1646–1716) drew no sharp line between their philosophical work and their seminal work in what we now call "physics."

4. Sir Isaac Newton (1643–1727), mathematician and physicist.

5. Immanuel Kant (1724–1804) developed a philosophical account of space and time according to which physical space must conform to the axioms of Euclidean geometry. This is at odds with Einstein's general theory of relativity (1915).