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"Carnap" and "the Polish Logician"

In *The Many Faces of Realism* and elsewhere, Hilary Putnam has presented an argument for the conclusion that there is no fact of the matter as to how many objects there are. In brief: "Carnap" says that a certain imaginary world contains three objects, x1, x2, and x3. The "Polish logician" says that this same world must contain four other objects (x1 + x2, x1 + x2 + x3, etc.). Putnam maintains that there can be no fact of the matter as to whether the imaginary world contains three or seven objects. I examine Putnam's argument and find it, at bottom, unintelligible.

Keywords: Putnam, Realism, Number, Counting, Object, Existence, Mereology

I want to consider the argument contained in the following passage from Putnam's *The Many Faces of Realism.*

Conceptual relativity sounds like 'relativism', but has none of the 'there is no truth to be found ... "true" is just a name for what a bunch of people can agree on' implications of 'relativism'. A simple example will illustrate what I mean. Consider 'a world with three individuals' (Carnap often used examples like this when we were doing inductive logic together in the early nineteen-fifties), **x1, x2, x3**. How many *objects* are there in this world?

Well, I *said* "consider a world with just three individuals", didn't I? So mustn't there be three objects? Can there be non-abstract entities which are not 'individuals'?

One possible answer is 'no'. We can identify 'individual', 'object', 'particular', etc., and find no absurdity in a world with just three objects which are independent, unrelated 'logical atoms'. But there are perfectly good logical doctrines which lead to different results.

Suppose, for example, that like some Polish logicians, I believe that for every two particulars there is an object which is their sum. (This is the basic assumption of 'mereology', the calculus of parts and wholes invented by Lezniewski.) ... I will

find that the world of 'three individuals' (as Carnap might have had it, at least when he was doing inductive logic) actually contains *seven* objects:

World 1	World 2
x1, x2, x3	x1, x2, x3, x1+x2,
	x1+x3, x2+x3,
	x1+x2+x3
(A world à la Carnap)	('Same' world à la Polish logician)

[Now], the classic metaphysical realist way of dealing with such problems is well-known. It is to say that there is a single world (think of this as a piece of dough) which we can slice into pieces in different ways. But this 'cookie cutter' metaphor founders on the question, 'What are the parts of this dough?' If the answer is that ... x1, x2, x3, x1+x2, x1+x3, x2+x3, x1+x2+x3 are all the different 'pieces', then we have not a *neutral* description, but rather a *partisan* description—just the description of the Warsaw logician! And it is no accident that metaphysical realism cannot really recognize the phenomenon of conceptual relativity—for that phenomenon turns on the fact that *the logical primitives themselves, and in particular the notions of object and existence, have a multitude of different uses rather than one absolute 'meaning.*[1]

What can Putnam mean when he says that "the logical primitives themselves, and in particular the notions of object and existence, have a multitude of different uses rather than one absolute 'meaning'"? This sentence presupposes the truth of several theses. One of them is that the notion of an object is a "logical primitive." What does this mean? Not, obviously, that some symbol used in formal logic is a logical primitive in the sense that, say, '~' is, and, moreover, bears the same relation to the English word 'object' as '~' bears to 'it is not the case that'. Perhaps the best way to understand the idea that the notion of an object is a logical primitive—I should think the only way to understand this idea —is to equate it with Wittgenstein's idea that "object" is a formal concept: that anything one can say using the word 'object' one can say without using it; that it can be dispensed with in favor of variables—which is to say, in favor of third-person-singular pronouns. We could put the thesis this way: any substitution-instances of the following pair of formulae are equivalent:

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[1] Hilary Putnam, *The Many Faces of Realism: the Paul Carus Lectures* (La Salle, Illinois: Open Court, 1987). The quoted passage occurs on pp. 17-19.

$\forall x \ (x$ is an object $\rightarrow Fx)$ $\qquad\qquad$ $\forall x \ Fx;$

and of the following pair:

$\exists x \ (x$ is an object & $Fx)$ $\qquad\qquad$ $\exists x \ Fx.$

But if this is what 'object' means, what can it mean to say that 'object' has "a multitude of different uses rather than one absolute 'meaning'."? Have variables "a multitude of different uses rather than one absolute 'meaning'."? Have third-person-singular pronouns?

We might understand the thesis that variables have a multitude of different uses rather than one absolute meaning as the familiar thesis that variables are essentially "sorted," that each "logical category" requires its own style of variable. But different styles of variable are a mere notational convenience. If we like, we can use, say, bold-face variables for, say, sets, and ordinary italic variables for individuals or non-sets, but this is only a labor-saving device. If we want to express formally the thesis that some sets have sets but not individuals as members, it allows us to write the neat, compact formula

$$\exists x \ \exists y \sim \exists z \ (y \in x \ \& \sim z \in x)$$

in place of the messy, diffuse formula

$$\exists x \ \exists y \sim \exists z \ (x \text{ is a set } \& \ y \text{ is a set } \& \sim z \text{ is a set. } \& \ y \in x \ \& \sim z \in x).$$

And "unsorted" variables are what we must start with, for a variable is in essence a third-person-singular pronoun, and (if we abstract from some wholly irrelevant considerations of sex and grammatical gender) there is only one third-person-singular pronoun, and it has only one meaning. We do not have one third-person-singular pronoun for talk about objects in one logical category and another for talk about objects in another, and we do not use 'it' with one sense when we are talking about artifacts and with another when we are talking about numbers or laws or amounts of money or trade routes. If these things were not so, the following sentences would be nonsense:

> Everything has this property: if it's not a proper class, then it's a member of some set

No matter what "logical category" a thing belongs to, it can't have contra-
dictory properties

If something belongs to the extension of a predicate, it can do so only as the
result of a linguistic convention.

And these sentences are quite plainly *not* nonsense. It is therefore hard to see what
Putnam can mean by saying that 'object' has a multitude of different uses. (He is
certainly not saying that the word 'object' is used in more and less restricted ways—
that in many contexts we use 'object' as an abbreviation for '… object' or 'object
that is F'. He is not saying that the "world à la Carnap" and the "world à la Polish
logician" really have the same seven inhabitants, and that Carnap and the Polish
logician are merely using two sets of linguistic conventions, conventions according
to which Carnap restricts the range of his variables to three of the seven inhabitants
of the world and the Polish logician does not restrict the range of his variables. To
say this, in fact, would be to adopt a version of what Putnam deprecates as the
cookie-cutter metaphor, supposedly beloved of metaphysical realists.)

   If this argument is correct, a parallel argument would seem to apply to what
Putnam says about 'existence'. If existence is, as Putnam says, a "logical primitive"
(this means, I suppose, that the words 'exist' and 'existence' can be dispensed with
in favor of '∃') it cannot have "a multitude of different uses." If it did, then number-
words like 'three' and 'six' and 'forty-three' would have a multitude of different
uses. It is evident, however, that Carnap and the Polish logician do not mean
different things by 'three' when Carnap says 'There are exactly three objects' and
the logician says, 'There are more than three objects'. It is not possible to suppose
that Carnap and the Polish logician mean different things by the formula

$$\exists x\, \exists y\, \exists z\, (\sim x = y.\ \&\ \sim x = z.\ \&\ \sim y = z.\ \&\ \forall w\ (w = x \vee w = y \vee w = z)).$$

If Carnap and the Polish logician differ about whether this formula is true in some
world, this cannot be because they mean different things by this formula—or mean
different things by 'three'. They cannot mean different things by this formula
because, given that its variables are unrestricted, there is only one thing for this
formula *to* mean. There is only one thing for it to mean because it consists entirely
of logical constants and there is therefore nothing in it to interpret. It contains no
name or predicate or common noun to which different language-users could assign
different extensions. One could of course translate it into English as something like

'Exactly three objects exist' and then say, as Putnam does say, that the common noun 'object' and the predicate 'exist' have a multitude of different uses rather than one absolute meaning. But if 'object' and 'exist' are, as Putnam maintains, "logical primitives," they have only a grammatical existence; they are ghostly presences required by the rules of English grammar; they are not really *there* to have uses or meanings or any other features. (If one wanted to make at least partial sense of Wittgenstein's slogan '*object* is a pseudo-concept' and Kant's slogan 'existence is a logical, not a real predicate', this, I think, would be exactly what one should say.)

It is therefore not at all clear what Putnam's conclusion is. But perhaps we can understand his conclusion if we examine his argument. (It is usually a good strategy to examine an argument when you do not understand its conclusion.) The argument has to do with counting things. But what sort of thing, or what sorts of things, are being counted in Putnam's argument? I will begin my attempt to find an answer to this question by listing the count-nouns that Putnam uses in connection with counting:

— individual

— object

— (non-abstract) entity [used only once, in connection with the suggestion that there might be objects that were not individuals]

— particular

— logical atom [used only once, and in scare-quotes]

— part [used only once, in connection with the "cookie cutter" metaphor: 'What are the parts of the dough?'].

The most important of these count-nouns would seem to be 'individual', 'object', and 'particular'. Apparently, the relation between these three terms is more or less as follows:

We are discussing only non-abstract things—"particulars." Among the particulars, perhaps co-extensive with them, are "individuals." But it may be that there are "objects" that are particulars but not individuals. 'Object' is the most general of the three count-nouns: everything is an objects; particulars are non-abstract objects. But since we are not discussing abstract objects, since we have excluded them from our universe of discourse, 'object' and 'particular' in effect coincide. We can,

therefore, let the word 'particular' drop out of the discussion, and simply ask whether there are objects that are not individuals.

I am afraid I have no sense of what the distinction between an individual and a (non-abstract) object that is not an individual is supposed to be. When we try to see what Putnam is getting at in attempting to distinguish individuals and objects that are not individuals, we find only one clue: it seems that if x and y are individuals, then $x + y$ is an object that is not an individual. But I do not find that this clue leads me anywhere. Let me try to explain why. I will begin by discussing the symbol '+'. This symbol is a "term-maker": it takes two terms and makes a term. What does this term-maker mean? It is not normally (in developments of "mereology") taken as a primitive. It is normally defined in terms of some other mereological predicate—say, 'overlaps' or 'is a part of' ('part' being used in the "inclusive" sense in which everything is a part of itself). Let us take 'is a part of' as primitive. Using this predicate, we first define 'x overlaps y' or 'x and y have a common part' in the obvious way. We may then write

F $x + y$ $=_{df}$ ∃!z (Fz and x is a part of z and y is a part of z and ∀w (if w is a part of z, then w overlaps x or w overlaps y)).

This definition can be generalized. We can define a more general operator, an operator on sets, 'the sum of' or 'the sum of the members of' as follows:

F (the sum of S) $=_{df}$ ∃!z (Fz and every member of S is a part of z and every part of z overlaps some member of S).

The operators '+' and 'the sum of' are related in the obvious way: the sum of {x1, x2} = x1 + x2, and the sum of {x1, x2, x3} = x1 + x2 + x3. (And the sum of {x1, the sum of {x2, x3}} = x1 + (x2 + x3)—which, as Putnam's notation suggests is just x1 + x2 + x3; in mereology, as in arithmetic, when using '+' we can move or remove brackets as we will.)

The operators '+' and 'the sum of' are used by "the Polish logician" in connection with a theory called 'mereology'. Putnam calls mereology a "logical doctrine" and "the calculus of parts and wholes invented by Lezniewski." But that is like calling Zermelo-Fraenkel set theory a logical doctrine and "the calculus of sets and members invented by Zermelo and Fraenkel." Mereology is in no sense a part of logic and it is certainly misleading to call something that makes such intransigent existential claims a "calculus." As set theory is a theory about members and sets

(that is, a theory about the membership relation), so mereology is a theory about parts and wholes (that is, a theory about the parthood relation). And mereology is a *particular* theory about parts and wholes. Other theories of parts and wholes are possible, theories that differ from one another far more than competing versions of set theory differ from one another. Competing versions of set theory differ about rather esoteric matters. Any two versions of set theory agree that if x and y are two individuals, then the set $\{x, y\}$ exists. Competing theories of parts and wholes disagree about such fundamental matters as whether, if x and y exist, $x + y$ exists. Consider, for example, the theory of parts and wholes I have called Nihilism, whose sole axiom is 'Nothing has any parts other than itself' or 'Parthood is coextensive with identity'. A second theory of parts and wholes that is inconsistent with mereology can be obtained by stipulating that any set whose members are fit to be parts of things has *at least* one mereological sum (and thereby leaving open the possibility that some sets have two or more mereological sums); by stipulating, that is, that for any such set, there will be *at least* one object that has all that set's members as parts and all of whose parts overlap some member of that set. We could call this theory "Pluralism." Pluralism will be congenial to those philosophers who maintain that a gold statue can be distinct from the lump of gold from which it is made. For if the statue and the lump are distinct objects, then they are distinct mereological sums of the same gold atoms.

When we consider Nihilism and Pluralism—the former denies the numerically distinct objects x and y a mereological sum and the latter allows them to have *two* mereological sums—, we can see why I have used the words "competing theories of parts and wholes" rather than the words "competing versions of mereology." Mereology with and without the null individual can sensibly be called competing versions of one theory. Mereology, in any version, Nihilism, and Pluralism are competing theories, full stop. To emphasize the fact that mereology is a particular theory about parts and wholes, one of many competing theories, I will in the sequel spell 'mereology' with a capital 'M'. Mereology has two axioms: that parthood is transitive and that any set whose members are the sorts of thing that can be parts has a mereological sum.

Now that we know what is meant by Mereology, let us examine "the world à la Carnap" and "the world à la Polish logician." The former is supposed to contain three individuals. Putnam's language ('independent', 'unrelated') pretty clearly suggests that these three individuals are not supposed to overlap mereologically— they are not supposed to have any parts in common. (And not only is this suggested

by his language, it must be his intent. If, say, x1 were x2 + x3, then Putnam's Carnap and the Polish logician would agree about the number of objects: they would both say that there were three; the Polish logician will count seven objects only if x1 and x2 and x3 do not overlap one another.) Putnam's language ("logical atoms") also suggests that x1 and x2 and x3 have no proper parts, that they are mereological simples. (And not only is this suggested by his language, it must be his intent. If any of them did have proper parts, these proper parts would themselves be individuals—or so I would suppose, but I'm feeling my way about in the dark here—, and, assuming "no overlap," there would be *more* than three individuals in the world à la Carnap.) Let us suppose, therefore that the world à la Carnap contains exactly three simples. These would be "Carnap"'s "three individuals." It is a theorem of Mereology (in versions without a null individual) that if a world contains exactly three simples, it also contains exactly four composite objects (non-simples, objects with proper parts) and contains nothing else. Are composite objects, objects with proper parts, not individuals? Are the mereological sums of individuals not themselves individuals? Why on earth not? If Putnam's Carnap says that a world that contains exactly three simples contains exactly three objects or exactly three individuals full stop, then he must reject Mereology—he must contend that Mereology is a false theory. And the "Polish logician" must hold that the description 'a world that contains three simples and nothing else' is an impossible description. (Of course, the friends of Mereology will be perfectly happy with the description 'a world that contains three individuals and nothing else'; this description would be satisfied by a world that contained exactly two simples, x1 and x2; this world would have exactly one other inhabitant, x1 + x2. And if x1 and x2 are individuals, no doubt x1 + x2 will also be an individual. How not?) It makes perfect sense to ask, Who (if either) is right, "Carnap" or "the Polish logician"? It makes perfect sense to ask, "Could there be a world that contained nothing but three simples?" If Mereology is a true theory about the part-whole relation, the answer is No. If Mereology is a false theory about the part-whole relation, the answer may well be Yes.

Since Mereology is a theory, we are free to reject it—in the absence of compelling reasons for accepting it or at least for regarding it as plausible. As it happens, *I* reject it. (I regard it, in fact, as wholly implausible.) At least: I reject it if 'is a part of' in the statement of the theory means what 'is a part of' means in English. (And I do not know what else it could mean.) Mereology makes assertions about what there is, and I do not accept these assertions. Take, for example, my dog Jack and

my cat Moriarty. If Mereology is a true theory, then there is such a thing as the sum of Jack and Moriarty. What properties does this object have? The theory itself tells us only that it has Jack and Moriarty as parts and that each of its parts overlaps either Jack or Moriarty—and that it has such other properties as may be logically derivable from these. But I know some things about Jack and Moriarty, and I know some things about parthood (e.g., that if a point in space falls inside a part of a thing all of whose parts are extended in space, then it falls inside that thing; that if $x = y + z$ and y and z do not overlap, and if y and z have masses, then x has a mass, which equals the sum of the masses of y and z). It follows from Mereology and these things I know that there exists a scattered object that weighs about thirty pounds and has two maximally connected parts each of which is now asleep, is about forty feet from the other, and is covered with fur. If you are unfamiliar with the terms 'scattered object' and 'maximally connected part', they may be explained as follows. A scattered object is an object that is not "all in one piece": a spatial object having at least two parts that are such that every path through space that joins those two parts passes outside that object. The mereological sum of a dog and a cat (at least, a dog and a cat not in contact) would thus be a scattered object. An object that is not scattered is "connected." A maximally connected part of an object x is a part of x that is a connected object and is not a part of any "larger" connected object that is a part of x. If there are cats and (undetached) cats' tails, then a cat's tail is a connected part of the cat, but not a *maximally* connected part, since there are connected parts of the cat larger than the tail of which the tail is a part. If a dog and a cat have a mereological sum, then the cat is a maximally connected part of that sum, since there is no *connected* part of the sum that has the cat as a part and which is larger than the cat. (In case anyone thinks the definition of "maximally connected part" is more complicated than need be: We cannot, as our example of a maximally connected part perhaps suggests, define a maximally connected part of x as a part of x that is a maximally connected object; if a cat's head and tail have a sum, the tail is a maximally connected part of that sum, but is not a maximally connected object.)

I do not believe there is any such thing as the sum of Jack and Moriarty, since I do not believe anything has the properties this thing would have if it existed. I do not believe there is a scattered object that weighs about thirty pounds and has two maximally connected parts each of which is now asleep, is about forty feet from the other, and is covered with fur. Just as those who think I have no immaterial soul think this because they think nothing has the set of properties a thing would

have to have to be my soul, so I think nothing is the sum of Jack and Moriarty because I think nothing has the set of properties a thing would have to have to be that sum. And why should one think there was any such thing? After all, that there is a theory that says there is something with certain properties is, taken by itself, a rather unimpressive reason for believing that there is something that has those properties. I can, if I like, put forward a theory (call it "substance dualism") that says that every mental property is instantiated only by something that also has the property immateriality, but if you think that nothing has both the property *is thinking about Vienna* and the property immateriality, you are unlikely to believe my theory. And I don't believe Mereology—any more than I believe Nihilism or Pluralism. Although I don't deny that some sets of material objects have sums, I don't think a very high proportion of them do. For most sets of, say, atoms, I don't think that there is anything that has the set of properties that the sum of that set of atoms would have to have. Putnam's Polish logician and I disagree not only about simple, imaginary worlds, but about the real world. We mean the same thing by 'mereological sum', since we mean the same thing by 'is a part of', which is no technical term but a term of ordinary English. (Or very close to it. Perhaps the English phrase 'is a part of' means what 'is a part of and is not identical with' means in the language of Mereology.) The "Polish logician" and I simply disagree about what mereological sums there are. (And we both disagree with the Nihilist and the Pluralist: the four of us hold four incompatible theories of the extension of the part-whole relation.) Like the atheist and the theist, the dualist and the materialist, and the nominalist and the platonist, the "Polish logician" and I disagree about what there is. The "Polish logician" and I use the definite description 'Jack + Moriarty' in the same sense; he thinks something has the right properties to be the denotation of this phrase and I don't.

I cannot, therefore, grant that "Carnap"'s and the "Polish logician"'s descriptions are equally good or equivalent descriptions of the population of a world—not, at least, if Carnap's description is 'a world that contains three mereological simples and nothing else'. I cannot grant that they *could* be equally good or equivalent descriptions of the population of a world, for they are straightforwardly incompatible, as incompatible as 'a world that contains immaterial souls' and 'a world that contains only material things'. (This is an aside. I think that what we have here is a special case of a general problem that confronts anti-realists of any stripe. The anti-realist must believe that there can be two propositions that are *just inconsistent enough* that someone who accepts one of them is in disagreement with

someone who accepts the other, but not so inconsistent that at least one of these two people must be just plain wrong. My position is that in the present case at least one of Putnam's two characters must be just plain wrong.) Putnam's argument, therefore, is, as I have understood it, incoherent. It is, of course, possible that I have not understood it. There are two ways in which this might have happened. One of them is that there is something there to be understood and I have failed to understand it.

In closing, I want to tie up a loose end. It has not been my purpose to defend the thesis that there *is* such a thing as "the number of objects." There are all sorts of reasons for denying that some number is the number of objects that the metaphysician must take seriously. I'll mention three. First, it might be that there are, so to speak, too many objects for them to be numbered: perhaps objects form a proper class. Secondly, it might be that identity is vague. If, as Terence Parsons has suggested, there is such an object as the pile of trash I swerved to avoid on Monday, and there is such an object as the pile of trash I swerved to avoid on Friday (in the same place), but there is no fact of the matter as to whether the former and the latter are the same object, then there is no answer to the question whether the number of objects answering to the description 'pile of trash I swerved to avoid on either Monday or Friday' is one or two. Thirdly, it might be that, as Geach has maintained, "identity is always relative to a sortal term." If the gold statue I have this year and the gold statue I had last year are the same lump of gold but not the same statue (and if there is no such thing as "absolute" identity), then there is no answer to the question, "How many *objects* satisfy the description 'gold statue I had either this year or last year'?" But I think it is clear that, whatever Putnam's argument may be, it does not turn on any of these three considerations.

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