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Naive Mereology, Admissible Valuations, and Other Matters

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I

David Sanford says a great many things in his paper.[1] A reply that included everything I wanted to say in response would be many times longer than his paper. I must therefore be selective.

I begin with his contention that the Special Composition Question (SCQ) is an impossible question. Well, perhaps so. In *Material Beings* (p. 68), I conceded that it might have no answer that anybody but God could know. I suppose that a question that had no answer that anybody but God could know could appropriately be described as an impossible question. But I don't see any reason to think that the SCQ is in fact impossible. The question whether the 10^{100}th digit in the binary expansion of π is '0' or '1' is an "impossible" question (although it is perfectly meaningful and God knows the answer to it), and I have good reasons for thinking that it is, reasons that will be immediately evident to the numerate. When I examine SCQ, however, I find no reason to think that it is impossible. Probably the best way to find out whether it was impossible would be to try to answer it and see what happened—a project that I, of course, recommend.

Secondly, I want to say something about "naive mereology" and the transitivity of parthood.[2] (I am not going to discuss Sanford's attempt to undermine his readers' confidence in the principle that mutual parthood entails identity. I am not going to do this because examples drawn from literary fantasy are essential to his argument, and, in my view, one may not use examples from fantasy in conceptual investigations. The reason is simple: the author of a fantasy has the power to confer "truth in the story" on known conceptual falsehoods. I could, for example, write a fantasy in which there were two mountains that touched at their bases but did not surround a valley. *A fortiori,* the author of a fantasy has the power to confer truth in the story on a proposition such that it is a controversial philosophical question whether that proposition is a conceptual falsehood.) Sanford suggests that the existence of an official "parts list" with forty-one entries establishes that a certain lawn-sprinkler has, in the naive or everyday understanding of 'part', exactly forty-one parts. Since at least some of these forty-one parts themselves have proper parts, and since no two of the forty-one overlap,[3] it follows that parthood—according to the naive or everyday understanding of parthood—is not a transitive relation. (Since Sanford's argument is for a conceptual or logical point, I will grant for the sake of argument that, contrary to the theory of composite material objects I have defended in *Material Beings,* the lawn-sprinkler and the forty-one items in the parts list exist—and that at least some of the forty-one items have smaller manufactured items as parts.)

In my view, this is not a cogent argument. I do not say this because of some antipathy to ordinary usage. According to Sanford, I share with Lejewski "an inclination to distance [myself] from actual discourse." I am reluctant to admit to the inclination that I have been charged with, although I am not sure what "distancing oneself from actual discourse" is. I certainly think that actual discourse about parts and wholes provides indispensable data for philosophical theorizing about parts and wholes, and I like to think that I am very sensitive to the features of actual discourse. But this is not Oxford and the year is not 1952. (As Sanford says, things were different then.) We know more about how to interrogate actual discourse than the dons of yore knew. We have learned that the fact that a form of words is "odd" or "not what we should say" does not mean that what it expresses isn't true. We know that falsity and lack of meaning are not the only defects that an utterance can have. It would be odd to say, in conducting the ordinary business of life, that the lawn-sprinkler had a vast number of parts that weren't in the parts list—unless perchance the parts list was annoyingly incomplete and one was giving hyperbolical vent to one's consequent frustration. That is, "This lawn-sprinkler has a vast number of parts that aren't in the parts list" would be an odd utterance. Given that the parts-list is in order, then, to adopt the idiom of the dons of yore, the quoted sentence is "not what we should say"; it is something that "one could say only as a joke." Nevertheless, what the sentence expresses is true.[4] Furthermore, since we are not here engaged in the ordinary business of life—we are now in what David Lewis calls the philosophy room, and here, owing to differences between the aims of philosophical discourse and the aims of everyday discourse, a different set of conventions and tacit understandings is in force—I can say it and my saying it is not odd and I am not making a joke. And I do say it: the lawn-sprinkler has a vast number of parts that are not in the parts list. Moreover, when I say this, I am using the word 'part' in no technical sense (as I probably should be if I said that the lawn-sprinkler was a part of itself) but simply in its ordinary sense.[5] This is pretty evident when you think about it. Suppose that all of the forty-one items in the parts list were manufactured in the USA. Does it follow that—let us be careful to use words only in their everyday senses—every part of the lawn sprinkler was manufactured in the USA? Imagine the manufacturer saying, "I concede that the whicket wheel and the sprizzer nozzle and all of the grommet caps were made in Japan. But these are not parts of the lawn-sprinkler. They are parts of parts of the sprinkler, true. But if you just consult the parts list, you'll see that every part of the sprinkler—all forty-one of them—was made in the good old USA." A parts list is, for goodness sake, a complete list of parts *of a certain sort.* (I'm not much of a frequenter of hardware stores, but I would venture a guess that the "sort" in question is: "part that has a serial number assigned by the manufacturer and can be purchased as a separate item.") And the sprinkler has plenty of other parts in the everyday sense of 'part'. Among them are not only manufactured things like the sprizzer nozzle and the grommet caps, but quarks and electrons as well. This is proved by the fact that a lawn sprinkler is, in the everyday sense of 'composed entirely of', composed entirely of quarks and electrons, and 'composed entirely of' and 'part' are conceptually connected: something can be composed entirely of quarks and electrons only if it has quarks and electrons as parts.[6]

II

The difficulty that Sanford raises for my solution to the Problem of the Many is, I think, a real one. I say "I think" because (a) I do not understand everything he says in his description of this difficulty (in particular, I have a great deal of trouble with the sentence "When we are at a complete loss to supply any reason why we should or should not count a certain simple as completely caught up in the life of Carter, it is no help to have continuum-many numerical alternatives in addition to 1 and 0"), and (b) there is a real difficulty in the vicinity. The real difficulty is this: it seems absolutely incredible to suppose that there could be a simple that was caught up in Carter's life to the degree $\pi/7$ and not to a degree indexed by a number that differs from $\pi/7$ only after the billionth decimal place. And even if we permit only a finite number of "degrees," it is still hard to suppose that there are facts about the physical world that could make it the case that a simple was caught up in Carter's life to some one of those degrees. Suppose that we decide that there are twenty-three degrees of "being caught up in Carter's life"—'1' for simples fully caught up in his life, '23' for simples outside his light-cone, and twenty-one "intermediate" degrees to cover the sorts and conditions of all other simples. Suppose that a certain simple is caught up in Carter's life to degree 16. . .but *can* we plausibly suppose that? Is it at all plausible to suppose that the truth of such a supposition could supervene upon the distribution of matter and radiation in space-time? *I* certainly have a hard time regarding this as plausible. (And there is a further difficulty that faces anyone who postulates a finite number of degrees: it is very hard to justify there being any particular number of degrees. Why twenty-three degrees? Why not twenty-two or thirty-four?)

This difficulty has been raised, in more or less this form, by Terence Horgan.[7] I have attempted to meet it by arguing that essentially the same difficulty faces *anyone* who employs concepts like "vagueness" or "matter of degree"—even the person who says such apparently innocuous things as 'If a currently living adult American male is 5' 11½" in height, there is no definite answer to the question whether he is tall' or 'Being tall is a matter of degree'. I argued, in response to Horgan, that the difficulty is inherent in the concepts of vagueness and degree, and does not arise from the specific use I have made of these concepts in my solution to the Problem of the Many. I speculated that if anyone could give a coherent, general account of vagueness and degree (and isn't it evident that these are coherent concepts?), this account would show or could be used to show that the difficulty with which Horgan (and Sanford, if I have him right) has confronted my solution to the Problem of the Many can be surmounted. Here I will mention only that this was my conclusion. I will not repeat my arguments.[8]

At present no resolution of this difficulty is apparent. Or so I say. Sanford, however, believes he has a way of resolving it. (Provided always that I am right in thinking that Sanford and I are really thinking about the same difficulty.) As I understand it, his resolution—which is outlined in the paragraph in his paper that begins with the sentence 'I recommend super-values defined with respect to fuzzy sets'—is confronted with a difficulty that is hardly different from the difficulty it is supposed to resolve. I say this because it seems evident to me that his approach to the Problem of the Many encourages us to—nay, demands that we—answer the unanswerable question, "Just exactly which of the admissible valuations of degree of parthood of that simple is the least?" (Or, more precisely: Just what, exactly, is the greatest lower bound of the set of admissible valuations of of degree of parthood of that simple?) I will first argue that his approach confronts us with this question. I will then go on to explain why it is unanswerable.

My argument does not depend on the least-number principle. Nor does it depend on any of the several analogous principles that apply to the real numbers, of which the following schema is a representative example:

> If x and y are real numbers and $y > x$ and ...y..., then there is either a least real number $z \geq x$ such that ...z... or a greatest real number $z \leq y$ such that $\neg$...z... .

(In this schema, dots surrounding a variable represent a sentence in which no variable other than the displayed variable is free.) This is well for my argument, for both of these principles are false. The least-number principle is wrong for just the reason Sanford says it is: it can fail in the case of vague predicates. (I prefer to make this point in terms of predicates rather than properties, for there are those who say that there are, strictly speaking, no vague properties but only vague predicates.) As for the schema, substitute the vague sentences 'it is humanly possible to specify y[z] in decimal notation' for '...y[z]...'; consider the case in which y is 1 and x is an irrational less than $1—\pi/7$, say.[9]

My argument depends rather on the following principle:

> Every (non-empty) interval on the real line that is bounded from below has a greatest lower bound.[10]

This is one of the axioms that define the properties of the real numbers, and can therefore hardly be regarded as controversial. In Sanford's example, there is a certain particle that is to some degree caught up in the life of Jimmy Carter—but to *what* degree? In the example as Sanford sets it up, all and only the numbers x, $0.3 \leq x \leq 1.0$, are "admissible" answers to this question. In other words, the set of what Sanford calls "admissible valuations of degree" is the closed interval [0.3, 1.0] ("closed" in that it includes its end-points). The fact that the admissible valuations of degree form an interval on the real line would not seem to be an artifact of the particular example. As I understand Sanford's proposal, for every living thing x and every simple y, the admissible valuations of the degree to which y is caught up in the life of x will form an interval on the real line. (It need not be a closed interval. Perhaps it need not be a connected interval, need not be "all in one piece," although that possibility seems very counter-intuitive; but we need not consider that possibility as a separate case, for the "greatest lower bound" principle is easily extended so as to apply to the union of any set of connected intervals.) It will, therefore, have a greatest lower bound, a *particular* real number. But, surely, we want to say, the physical world (the distribution of matter and radiation in space-time) and the meaning of the phrase 'caught up in the life of' do not together carry enough information to specify a particular real number. (Remember, a rule or procedure that specifies a particular real number must *rule out* all of the numbers that can be got by subtracting 1 from any of the digits "way out" in the decimal part of that number.) This difficulty is just exactly the difficulty that faces my "degrees of parthood" solution to the Problem of the Many. It looks equally formidable in its present form, and, therefore, I cannot see that Sanford's proposal is an advance on mine.

It will do no good to try to evade this point by proposing that sets of admissible valuations be fuzzy. (On the ground that the "greatest lower bound" principle does not hold for fuzzy intervals.) For each fuzzy interval on the real line F, there is a unique classical interval containing just those numbers that belong to F to any degree other than 0. And this classical interval (if it is bounded from below, which it will be since all of its members will be greater than or equal to 0) will have a greatest lower bound: a particular real number, grinning residually up at us like the frog at the bottom of the beer mug.

Notes

[1]"The Problem of the Many, Many Composition Questions, and Naive Mereology," *Noûs* 27, pp. 219–228. The present paper draws on my oral response to the version of Sanford's paper that was presented at the Book Symposium referred to in *n.* 1 of his paper.

[2]Sanford pays my knowledge of the byways of analytical philosophy an undeserved compliment when he says, "as [van Inwagen] knows, negotiations [*sc.*, concerning the transitivity of parthood] have been underway for some time." I was unaware of the paper by Rescher that he cites.

[3]Sanford says, "Parts lists and van Inwagen agree that parts do not overlap." (p. 221) This is not a technically correct description of my position, which allows cases in which, for distinct x, y, and z, x is a part of y and y is a part of z. In such cases, of course, z has parts that overlap. But let us say that two objects *properly* overlap if they have common parts and neither is a part of the other. Parts lists and van Inwagen—if van Inwagen may presume to speak for parts lists—agree that parts do not properly overlap.

[4]The same point applies to Rescher's organelle/organ example. Assume for the sake of argument—contrary to the position taken in *Material Beings*—that there are, in the strict and philosophical sense, organelles such as lysosomes and organs such as livers. Then a lysosome that is a part of one of my liver cells is a part of my liver, whether or not this is what a biologist would say. If a biologist wouldn't say this—which is more than I know, although I am certain that no biologist would flatly and crudely *deny* it—, then this fact has some explanation other than that it is *false* that a lysosome that is a part of one of my liver cells is a part of my liver.

[5]I agree with Sanford that there is a distinction in ordinary English between a mass-term and a count-noun sense of 'part'. (This is my own description of the distinction; it may be that Sanford would not accept this description of the distinction.) In this paper, it is my intention to use 'part' only in the count-noun sense.

[6]One other matter. Sanford remarks on the unliklihood that my book should have produced "so late in the day" the first conceptual analysis that was both profound and correct. I ought to point out that I was not offering an analysis of composition or any other mereological concept. To attempt that would be to attempt to answer what I called the General Composition Question, which I confessed was too hard for me. I attempted only the first question on the exam, the Special Composition Question, which is, roughly, "Under what conditions does composition occur?" As I also remarked, I am inclined to think that no analysis of composition is possible (other than a trivial analysis, an analysis in terms of some other mereological term like 'part'), because I am inclined to think that mereological terms like 'compose', 'part', 'sum', 'whole', 'fusion', 'overlap', and so on, form a "mereological circle" that cannot be broken into by analysis.

[7]In his contribution to the Book Symposium. Horgan's paper will be published in *Philosophy and Phenomenological Research.*

[8]See my reply to Horgan, also to appear in *Philosophy and Phenomenological Research.*

[9]I am assuming that there are perfectly clear cases of rational numbers such that it is not humanly possible to specify them in decimal notation: for example, the number whose decimal part is like π's for the first 10^{100} places and consists of zeros thereafter. And I am assuming that there is no sharp borderline between the numbers that it is humanly possible to specify in decimal notation and those that it is not. The use of an irrational number in the example is not essential to its point. A rational number that it was (definitely) not humanly possible to specify in decimal notation would have done as well.

[10]That is, if S is any non-empty interval on the real line, and if there is some number that is less than any member of S (if S is "bounded from below,") then there is a number that has the following feature: it is either the least member of S or the greatest number that is less than every member of S (the "greatest lower bound" of S). A "non-empty interval on the real line" (strictly, a *connected* non-empty interval on the real line) is a set that is defined by two real numbers: it contains all the numbers between its two "end-points," and it may or may not contain either or both of the end-points.