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example, the low assertibility of disjunctions of conditionals which, interpreted truth-functionally, are true; or of conditionals with conditional antecedent or consequent. Peirce's example adds another type of case: conditionals embedded under an existential quantifier. Any particular instance of the conditional is false, whether it is interpreted truth-functionally or not. The whole existential claim is intuitively false, yet, interpreted truth-functionally, true. To protest that, for example, (1e) is, believe it or not, true is a hard pill to swallow. Would you be happy if the organizers of the sweepstake made it a feature of their promotion? Yet what is the account of assertibility which can explain why we should not assert it — other than that it is actually false? If the truth-functionality thesis is correct, (1e) is no weaker than (2e). The conclusion has to be that (1e) is not just unassertable, it is quite simply false.

Peirce's example puts another nail in the coffin of the truth-functionality thesis. Conditionals are not truth-functional.³

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³I am very grateful to Hilary Putnam for first bringing the example to my attention, and to Peter Clark, Roy Dyckhoff, Geoff Keene and especially Crispin Wright for stimulating responses when I tried the example out on them.

COPPER STATUES AND PIECES OF COPPER: A CHALLENGE TO THE STANDARD ACCOUNT

By MICHAEL B. BURKE

WE have before us a copper statue. In the same place, presumably, there is a piece of copper. Let's call the statue 'Statue' and the piece of copper 'Piece'. Now what is the relationship between Statue and Piece? Among philosophers who reject the view that objects have temporal parts, by far the most popular account of such cases is one on which Statue and Piece are numerically different objects even though they consist of just the same matter and are wholly present in just the same place. What shows them to be different objects, according to this account, is that they have different persistence conditions: Piece could survive a drastic change in shape; Statue could not. Let's call this 'the standard account'.^{1,2}

¹That the account can justly be termed the 'standard' one might perhaps be disputed, in view of the increasing popularity of temporal-parts accounts of such cases. But by my tally it does remain the most popular account. Among those who

And let's preface our discussion of this account with a definition. Let's say that objects x and y *coincide* at time t just in case (1) x is not y , and (2) the place wholly occupied at t by the whole of x is numerically the same as the place wholly occupied at t by the whole of y . As here defined, coincidence is an irreflexive relationship. We will use 'coextension' and its cognates for the corresponding reflexive relationship.

To supporters of the standard account of cases such as Statue and Piece (i.e. cases in which an object satisfying one sortal is coextensive with an object satisfying a sortal associated with different persistence conditions), coincidence is a commonplace. (Pun intended.) Copper statues coincide with pieces of copper. Tailless cats coincide with 'pusses'. Persons may coincide with bodies. And ordinary physical objects of all kinds coincide with aggregates of molecules.

To many, the present writer included, the standard account is uncongenial. Peter van Inwagen calls it a 'desperate expedient' ([16], p. 129). Harold Noonan says that it 'manifest[s] a bad case of double vision' ([10], p. 222). David Lewis, speaking of the idea that plastic dishpans coincide with dishpan-shaped pieces of plastic, writes, 'This multiplication of entities is absurd on its face . . .' ([8], p. 252).

My aim in this paper is to provide a compelling reason for rejecting the standard account. (That the account multiplies entities and that it is at odds with the commonsensical principle of one thing to a place would themselves be compelling reasons, were it not for the fact that all of the familiar *alternative* accounts have drawbacks that can be considered at least equally serious.³) Elsewhere (and at much greater length) I will present my own, novel account of cases in which sortals associated with different persistence conditions have coextensive instantiations.

My argument will focus on a feature of the standard account yet to be mentioned. According to the account, coinciding objects *dif-*

advocate it, or at least regard it as defensible, are Chappell [2], Doepke [3], Forbes ([4], pp. 142-4), Kripke ([6], pp. 163-4, fn. 19), Lowe [9], Pollock ([11], pp. 157-66), Salmon [12], pp. 224-9), Shorter ([13], p. 399), Simons ([14], pp. 212-5, 221-4), Thomson [15], and Wiggins ([17], Part One; [18], Ch. 1).

²No doubt some supporters of the standard account, perhaps all of them, would see a third object in the situation. They would distinguish Piece, the *piece* of copper before us, from the *copper* that occupies the same place, on the grounds that Piece, but not the copper, would be destroyed if Statue were cut into pieces. And by all indications, none except Doepke would hesitate to say (*contra* Laycock [7]) that the copper is an object. If, indeed, a quantity of stuff is a single object, then my argument concerning the relationship between Statue and Piece will apply also to the relationship between Statue and the copper.

³Coincidence can be avoided, at least in some cases, in any of several ways: by rejecting sortal essentialism; by accepting mereological essentialism; by making identity relative to sort; by making identity relative to time; by denying that there are such things as undetached parts; or by embracing the doctrine of temporal parts.

fer in sort. (At least in ordinary cases. An exception might be made for some of the bizarre cases imagined by J. M. Shorter [13].) Piece, it would be said, is a piece of copper but not (predicatively) a statue; Statue is a statue but not (predicatively) a piece of copper. Of course, this feature of the account is essential to its plausibility. The account would be a non-starter if it entailed that Statue, an ordinary copper statue, is coextensive with *another copper statue* – or if it entailed that wherever there is a copper statue, one piece of copper is coextensive with *another piece of copper*.

On the standard account, then, Statue and Piece are numerically different objects that occupy the same place but differ in sort. Now here is the problem. Statue and Piece are qualitatively identical. Indeed, they consist of the very same atoms. What, then, could *make* them different in sort?⁴

No one, I believe, would suggest that sort is a *basic* property. If Statue is a statue and Piece is not, then there must be something true of Statue, but not of Piece, in *virtue* of which Statue is a statue. And if Piece is a piece of copper and Statue is not, then there must be something true of Piece, but not of Statue, in *virtue* of which Piece is a piece of copper. The question, in each case, is what that something might be.

Of course, it would not be to the point to observe that ‘Statue’ was introduced as our name for the statue here and ‘Piece’ as our name for the piece of copper. That is true, but it does not tell us what *makes* the statue here a statue. And it does not tell us what *makes* the piece of copper here a piece of copper.

It would also be unresponsive to say that identification is always *under a sortal* and that Statue, unlike Piece, is identified under ‘statue’ while Piece, unlike Statue, is identified under ‘piece of copper’. An object can be *identified* under a sortal only if it already *satisfies* that sortal. And the questions we want answered are these: In virtue of what does the object identified under ‘statue’ *satisfy* ‘statue’? In virtue of what does the object identified under ‘piece of copper’ *satisfy* ‘piece of copper’?⁵ Given the qualitative

⁴On theories that allow only one object to a place, differences in sort are readily explained. The difference in sort between a tree and a mouse is attributable to the difference in their qualities. In the extraordinary case in which the objects differing in sort are qualitatively identical (as in Peter Simons’ case of genuine bills and counterfeit bills ([14], p. 205) or the case of a statue and a qualitatively identical object produced by a volcano), the difference in sort is explained by differences in the manner or circumstances of their origin or, perhaps, by other differences in their histories. (Below we will see why such differences could not account for the alleged difference in sort between Statue and Piece.)

⁵Perhaps it will be suggested that objects satisfy the (substance) sortals they satisfy precisely in virtue of being *identified* under those sortals. Such a suggestion could be understood in either of two ways: (1) An object satisfies no sortal whatsoever unless it has been (or will be?) identified, in which case it satisfies whichever sortal it was (or will be) identified under. (2) An object owes not just its sort, but

identity of these objects, what explains their alleged difference in sort?

To the latter question I can imagine only two answers: (1) that Statue and Piece have different histories and (2) that Statue and Piece have different persistence conditions. In what follows I will argue that neither answer is satisfactory. I will conclude that Statue and Piece do not differ in sort and that the standard account must therefore be rejected.

Let's begin with answer (1), that Statue and Piece differ in sort as a result of differences in their histories. The problem with this answer emerges when we ask how it is possible for Statue and Piece to differ in their histories, given that Statue and Piece are (at present) coextensive. In the present context, to say that objects x and y differ in their histories is to say that for some past or future time, x and y differ with respect to the properties (of certain types) that they exemplify at that time. This, in turn, is to say that for some past or future time and for some property (of one of those types), it is true of x or y , but not of both, that it is numerically identical across time with an object exemplifying that property at that time. But now what could account for a difference in the cross-time identities of Statue and Piece? The two are composed of just the same atoms. And since they are coextensive, any object spatiotemporally continuous with one is spatiotemporally continuous with the other. If one but not the other is identical with a certain past or future object, the only apparent explanation for this is that one but not the other is like that object in *sort*. In short, historical differences between Statue and Piece could be explained only by reference to the very difference they are themselves supposed to explain: the alleged difference in sort.

Perhaps it will be suggested that differences in the cross-time identities of Statue and Piece would require no explanation. It is arguable that cross-time identities cannot be analysed in terms of other, more basic relationships.⁶ And it might be thought to follow that cross-time identities are ungrounded, that their relata satisfy no conditions that are (non-trivially) sufficient for, and hence

its very existence, to being identified under a certain sortal. As for (1), it is inconsistent with the sortal essentialism that underlies the standard account. As for (2), it must be distinguished from the familiar anti-realist (or 'internal realist') thesis that objects have no existence independently of conceptual schemes. According to (2), objects depend for their existence not just upon the existence of conceivers, but upon being *individually identified* under (sortal) concepts. I will simply ignore this possibility, partly because of its implausibility, partly because of the infeasibility of entering here into realist/anti-realist controversies, but mostly because there is no indication that this radical thesis is or would be accepted by those who support the standard account. Wiggins, the most influential exponent of the account, emphatically rejects even the familiar forms of anti-realism, both with respect to sort ([18], pp. 136–8) and with respect to existence (pp. 138–42).

⁶ Kripke has argued this (in unpublished lectures). It's the lesson he draws from his case of the homogeneous, rotating disk.

could explain, their identity. In fact, it does not follow. What does follow is the proposition that cross-time identities are grounded, if at all, only in conditions that include or presuppose *other cross-time identities*. This proposition falls well short of what would be needed to defend the idea that differences in the cross-time identities of Statue and Piece would require no explanation: the proposition that there are *no* conditions that ground cross-time identities, not even when the identicals are composite and when the conditions may include cross-time identities involving their *components*. This is a proposition that has never, to my knowledge, been propounded, although the absolute ungroundedness of cross-world identities is the paradoxical conclusion (accepted by no one, so far as I am aware) of certain modal paradoxes, notably the 'four-worlds paradox'.⁷

Let's move now to answer (2). This time the suggestion is that the (alleged) difference in sort between Statue and Piece is explained by the (alleged) difference in their persistence conditions: Part of what makes Statue a statue is that it can persist only so long as it retains a certain shape; part of what makes Piece a piece of copper is that it can persist through any change in shape, providing it remains intact.

Now it seems less natural to explain an object's sort by reference to its persistence conditions than to explain its persistence conditions by reference to its sort.⁸ But the more important point is this. If the difference in the persistence conditions of Statue and Piece is used to explain their difference in sort, then there will be no apparent way to explain the difference in their persistence conditions. It is not possible, of course, for each of the alleged differences to be explained by the other. Neither is it possible, I submit, for either sort of difference not to *have* an explanation. If Piece, but not Statue, could survive a drastic change in shape, surely there must be something that *accounts* for this difference.⁹ But if that something is not their difference in sort, what could it be?

Having rejected answers (1) and (2), and seeing no other plausible explanation for the alleged difference in sort between Statue and Piece, I conclude that Statue and Piece do not differ in

⁷ For a statement of the four-worlds paradox and a discussion of some possible solutions, see [12], pp. 229–52. For an explanation of how cross-time identities can be grounded if objects lack temporal parts, see [5], pp. 184–5.

⁸ Are an object's being of a certain sort and its having certain persistence conditions the *same thing*? If they are, then neither can explain the other. And answer (2) must be rejected.

⁹ One could deny this, if one were prepared to accept that cross-world identities are (absolutely) ungrounded. But as noted two paragraphs back, I know of no one who is prepared to accept this proposition. (It should not be confused with the much weaker thesis advanced by Adams [1]: that the cross-world identities of material objects are never grounded in purely *qualitative* conditions.)

sort and that the standard account must therefore be rejected. Elsewhere I will offer a novel alternative.¹⁰

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¹⁰I am indebted to the Editor and to an anonymous referee for very helpful suggestions.