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By E. J. LOWE

IN §110 of his book *Reference and Generality* (Third Edition; Cornell University Press, 1980), P. T. Geach presents the following puzzle or paradox. We are to suppose that a certain cat, Tibbles, is sitting on a mat; moreover, Tibbles is the only cat sitting on the mat. Since Tibbles is, we suppose, a normal cat, it has at least one thousand hairs. Geach continues:

Now let c be the largest continuous mass of feline tissue on the mat. Then for any of our 1,000 cat-hairs, say h_n , there is a proper part c_n of c which contains precisely all of c except the hair h_n ; and every such part c_n differs in a describable way both from any other such part, say c_m , and from c as a whole. Moreover, fuzzy as the concept cat may be, it is clear that not only is c a cat, but also any part c_n is a cat: c_n would clearly be a cat were the hair h_n plucked out, and we cannot reasonably suppose that plucking out a hair generates a cat, so c_n must already have been a cat. So, contrary to our story, there was not just one cat called 'Tibbles' sitting on the mat; there were at least 1,001 sitting there! (p. 215)

Geach concedes, of course, that this conclusion is absurd, but it is interesting to observe wherein he professes to detect the fallacy. He explains:

Everything falls into place if we realize that the number of cats on the mat is the number of *different cats* on the mat; and c_{13} , c_{279} and c are not three different cats, they are one and the same cat. Though none of these 1,001 lumps of feline tissue is the same lump of feline tissue as another, each *is* the same cat as any other: each of them, then, is a cat, but there is only one cat on the mat, and our original story stands. (p. 216)

Now I concede that this manoeuvre of Geach's saves the truth of the original story; but, as he says, there is a price to pay. 'The price to pay is that we must regard "---is the same cat as ---" as expressing only a certain equivalence relation, not an absolute identity restricted to cats' (p. 216). Geach, however, is happy to pay this price, since he considers that it 'must be paid anyhow, for there is no such absolute identity as logicians have assumed' (ibid.), and in defence of this contention he refers us to earlier arguments in his book. I shall not consider those arguments here, though I do not as a matter of fact find them convincing. What I shall do, however, is to explain why I think that the truth of the original story can be saved far more plausibly without having to pay this price; and at the same time I shall try to show that Geach's resolution of the puzzle is in fact untenable.

Let me then say at once what my own solution to the paradox is. What I would say is that it is not merely *not* 'clear' (as Geach claims), but is in fact just *unintelligible* to suggest that the lump of feline tissue c (or any of the other lumps mentioned) is a cat. None

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of the 1,001 lumps of feline tissue is a cat, so there is not even a *prima facie* case for saying that there are 1,001 cats sitting on the mat. Why do I say this? Simply because the sortal terms 'lump of feline tissue' and 'cat' have *different criteria of identity* associated with them, and I contend that no individual of a sort ϕ can intelligibly be said also to belong to a sort ψ if ϕ and ψ have different criteria of identity. Geach clearly cannot believe this, or he would not have had to resort to his own means of dissolving the paradox, involving the abandonment of classical 'absolute' identity. (Incidentally, Geach himself explains admirably why sortal terms – or, as he calls them, substantival general terms – must have criteria of identity associated with them: see op. cit., pp. 63 f.)

But how can I defend my contention? More particularly, why do I say that no individual lump of feline tissue can be a cat? The answer is that I believe that one may construct a reductio ad absurdum of Geach's contrary assumption, as I shall now attempt to explain.

First of all, we should observe that Geach himself explicitly regards $c_1, c_2, c_3, \ldots, c_{1,000}$ and c itself as different lumps of feline tissue, so that he himself presumably subscribes to what we may call the Lockean criterion of identity for 'parcels of matter' or 'masses'. Locke, we may recall, asserts that 'whilst [a number of atoms] exist united together, the mass, consisting of the same atoms, must be the same mass, or the same body, let the parts be never so differently jumbled: but if one of these atoms be taken away, or one new one added, it is no longer the same mass, or the same body' (An Essay Concerning Human Understanding, Bk. II, Ch. XXVII, §3). According to this Lockean criterion (which also strikes me as being essentially correct), if x and y are parcels of matter of any sort (e.g. lumps of feline tissue), then x and y are the same parcel of matter if and only if x and y consist of the same atoms 'united together'. Thus c_n is a different parcel of matter from c simply because it does not contain the atoms included in the hair h_n , whereas c does.

Next we should notice that Geach also apparently subscribes to something like the Lockean criterion of identity for living organisms such as cats. Locke, it may be remembered, observes that '[i]n the state of living creatures, their identity depends not on a mass of the same particles; but on something else. For in them the variation of great parcels of matter alters not the identity' (ibid.). (Later, he goes on to suggest that this 'something else' upon which the identity of living organisms depends is 'a participation [in] the same continued life'; but precisely what this might mean need not concern us here, since all that does concern us is that Locke rightly ascribes different criteria of identity to parcels of matter on the one hand and living organisms on the other, and that Geach would apparently concede the rightness of this.) That Geach would subscribe to something like the Lockean criterion of identity for living organisms is apparent from that fact that, in defending his (in my view erroneous) contention that c_n is a cat, he says that ' c_n would clearly be a cat were the hair h_n plucked out, and we cannot reasonably suppose that plucking out a hair generates a cat' (op. cit., p. 215; my emphasis). The reason why this suggests that Geach subscribes to something like the Lockean criterion of identity for living organisms such as cats is that it indicates that he concurs with Locke (and common sense) in allowing that the gain or loss of a parcel of matter by a cat 'alters not the identity' of the cat (as Locke puts it).

So far, then, we have seen that Geach himself would appear to concede that the sortal terms 'lump of feline tissue' and 'cat' have *different* criteria of identity associated with them, and moreover criteria substantially akin to those Locke proposed for parcels of matter and living organisms respectively. We are now in a position to construct the *reductio ad absurdum* of Geach's supposition that the lump of feline tissue c (or any other such lump) is a cat.

The argument runs as follows. For the purposes of the reductio we are to suppose, with Geach, that the lump of feline tissue c is a cat. But c, being a lump of feline tissue, is a thing of such a sort that, according to the criterion of identity for things of that sort, it simply *ceases to exist* if various particles of matter (e.g. those contained in a certain hair h_n) are removed from it. (It ceases to exist because after the removal of these particles the atoms of which c was constituted are no longer 'united together'.) But nothing that is a cat can cease to exist merely on this account. because whatever is a cat must comply with the criterion of identity for living organisms, according to which (as Locke says) 'in them the variation of great parcels of matter alters not the identity'. Hence Geach is apparently committed to saying that c both will and will not cease to exist if various particles of matter are removed from it. So his assumption that c is both a lump of feline tissue and a cat commits him to *denying* that any particles of matter can be removed from c, and this is plainly false (and not merely contingently so). Therefore his original assumption must be erroneous.

We can generalize this argument to show that, wherever an individual x belongs to each of two different sorts ϕ and ψ , these sorts cannot have different criteria of identity (though they may of course have the same criterion and still be different sorts, as is the case with, e.g., the sorts cat and mammal). The point quite simply is that, if C_{ϕ} and C_{ψ} are the respective criteria of identity, we cannot in general rule out a priori the possibility that there should arise circumstances in which, according to C_{ϕ} (say), x will cease to exist, whereas according to C_{ψ} it will not.

All of this presupposes, of course, that if various particles of matter are removed from a lump of feline tissue such as c, then that particular lump of feline tissue *ceases to exist* (and, more generally, that the criterion of identity for a sort ϕ determines conditions under which individuals of that sort will cease to exist). But can this

plausibly be denied? Certainly, after the particles of matter have been removed from c, there will be no lump of feline tissue with which c is any longer identifiable: of this much the Lockean criterion of identity for parcels of matter assures us. Geach, of course, would presumably want to say that c still exists qua cat, i.e. is still identifiable with the cat Tibbles, and so has not ceased to exist. But I find this suggestion quite unintelligible. c was originally individuated and introduced to us as a certain *lump of feline tissue*, and so I do not see how we can go on talking about c in the present tense once there is no such lump of feline tissue to refer to. (And, after all, if criteria of identity do not determine the conditions under which individuals of given sorts cease to exist, what on earth does? Or are we perhaps to relativize existence in the same way that Geach wants us to relativize *identity*? That seems to me the only resort available to him, and a particularly unpalatable one too. Geach should arguably have foreseen this, since it is a familiar fact that the concepts of identity and existence are intimately related logically.)

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REPLY TO LOWE

By P. T. Geach

DR LOWE kindly sent his paper for comment; I am afraid I can Jonly say that he commits an ignoratio elenchi. He ascribes to me a 'Lockean' view as to what criterion of identity we must use for a 'parcel of matter' over time; but he cites no passage from my writings parallel to his quotations from Locke, and indeed could not have cited one. It is integral to Locke's account to bring in atoms: an account that deserved the name 'Lockean' would at least have to bring in enduring fundamental particles of some sort; no theorizing that I am committed to does so. But in any case the identity over time of a lump or bit of feline tissue is clearly not given by any sort of 'Lockean' criterion for the diachronic identity of a 'parcel of matter'; in writing as if it were so given, Dr Lowe is oddly forgetting metabolism. Tibble's liver, or one of his teeth or hairs, remains the same bit of feline tissue during interchanges of matter; and the same goes for the bits of feline tissue mentioned in my argument.

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