CHANGE AND CHANGE-*ERSATZ*

Uwe Meixner

Like other sciences, metaphysics must save the phenomena. But, usually, this can be done in a variety of ways. The problem is to give good reasons for preferring one way over the other. Take such a familiar phenomenon as *change*. Here we find a metaphysical position that, on the face of it, seems to deny that there is any change at all; I shall call it *supereternalism*. Yet, philosophers on the side of supereternalism have worked hard to make it save the phenomenon of change – with truly remarkable success. The feeling remains that, nevertheless, a non-supereternalistic conception of change is more appropriate. This paper will give reasons for believing this. But before coming to supereternalism and change, I want to discuss something else.

1. SUPERESSENTIALISM AND CONTINGENCY

The rationale for this is to draw what I hope is an illuminating analogy between the following two pairs of concepts, whose members are apparently rather ill-matched and bound to conflict, the *modal* pair: *superessentialism* and *contingency*, and the *temporal* pair: *supereternalism* and *change*. Structurally, the conceptual relationships are in both cases rather similar.

Consider then the following statement:

(A) If an object had properties different from those it has in fact, it
would be different from what it is in fact.

Prima facie this seems to be obviously true. But reflection reveals an
ambiguity in it. If (A) is read in the sense of

(A1) If an object had properties different from those it has in fact,
it would be *qualitatively different* from *what, qualitatively, it
is* in fact,

then (A) is indeed obviously true. But if (A) is read in the sense of

(A2) If an object had properties different from those it has in fact,
it would be *numerically different* from *what, numerically, it
is* in fact,

then the truth of (A) is, after all, doubtful. For, in view of the fact that
no object can be numerically different from what it is numerically in
fact (namely, *itself*), (A2) is nothing else than a little more compli-
cated way of stating that no object can have other properties than it has
in fact. And *this*, a claim of *superessentialism*, is of course a doubtful
claim (although, irritatingly, there is also an unintended way of reading
the claim in which it is trivially true).

But it is easy to conflate the doubtful (A2) with the trivial (A1),
the manner of conflating them being exhibited precisely by the am-
biguous sentence (A). Although it is hardly believable, conflation of
qualitative and numerical sameness may be one of the reasons,[1] why
philosophers like Leibniz and Lewis thought it to be plausible that, *in
a sense*, every object necessarily has the properties it has in fact – *in a
sense*, for both philosophers have attempted to preserve our intuitions
of contingency. For them, *in a different sense* from the sense just men-
tioned (and for Lewis in a vastly more important sense), there are after
all objects that *do not* necessarily have all the properties they have in
fact. Thus Leibniz and Lewis are both superessentialists who never-
theless want to hold on to contingency.

Before discussing this, let me briefly elaborate on the concepts
employed in (A1) and (A2). Though both are expressed by 'is', *quali-*

tative being and *numerical being* are *vastly different* concepts, as can be seen from the two principles that govern their use:

(B1) For every object x and every property f of objects: *x is qualitatively f* iff *x has f.*

(B2) For every object x and object y: *x is numerically y* iff *x is identical with y.*

Given this, (A1) simply says: *if an object had different properties from those it has in fact, it would have different properties from those it has in fact.* Nothing could be more certain than this. But (A2), on the other hand, means: *if an object had different properties from those it has in fact, it would not be identical with the object it in fact is numerically identical with.* This is rather doubtful.

Suppose we nevertheless accept (A2), undaunted by the charge that we are apparently confusing qualitative and numerical being, the concepts which Plato laboured to distinguish in the *Sophist*. How can we then preserve our intuitions of contingency?

The answer of *counterpart theory* is very well known: although, in a certain sense, no object can have other properties than it has in fact, there is a sense, and it is alleged to be the only truly relevant sense, in which an object *can* have other properties than it has in fact. This sense is given in the following two contingency-descriptions:

(C1) Let x be an object that does not in fact have the property f. But it is possible that x has f (and it is therefore contingent that x does not have f), since there is a possible world w and a *counterpart y* of x in w such that y has f in w.

(C2) Let x be an object that in fact has the property f. But it is possible that x does not have f (and it is therefore contingent that x has f), since there is a possible world w and a *counterpart y* of x in w such that y does not have f in w.

The immediate impression one obtains from (C1) and (C2) is that the contingency that counterpart theory is able to provide is nothing but *counterfeit contingency*, at best an *ersatz* for genuine contingency. For a possibility that is a possibility for an object x *only* in virtue of its being an otherworldly fact for *another* object y, different from x, al-

though in a certain manner similar to *x*, is really only a *vicarious possibility* for *x*, and thus not a genuine possibility for *x* at all.

But obvious as this criticism may be, it has not made any impression on the counterpartists, notably on David Lewis. They persist in their ways. If the discussion of metaphysical matters is more than an intellectual game where one never gives up unless one is shown to be inconsistent, then the reason for this persistence can only be that in the question of what is genuine contingency, and what is counterfeit, the answers are not as obvious as for some people, notably myself, they seem to be.[2]

It is instructive to compare contingency according to counterpart theory with contingency according to Leibniz. Adam, the first human being, sinned; but normally (*normal* being here what is theologically orthodox) one would say that Adam's sinning was not necessary, but contingent: although he sinned, Adam might not have sinned. Leibniz was far from denying this. But what does the contingency of Adam's sinning mean according to Leibniz, who also held that, in a sense, every object has every property it has necessarily, since he equated an object's having a property *f* with the property *f* being intensionally included in the (necessary) individual concept of the object? The answer is implicit in a letter to Antoine Arnauld from June 1686[3]: Adam's sinning is contingent since there is a possible Adam who did not sin and whom God could have made actual instead of the real Adam who sinned.

Essentially, this a theologically-phrased version of the contingency conception of counterpart theory. The "possible Adams" are precisely the counterparts of the real Adam, and God's (unexercised) ability to make actual some possible Adam who did not sin is, in view of the Leibnizian presuppositions of God's omnipotence and of the world-implying (or "world-mirroring," as Leibniz says) of each object (each implies the world it belongs to and in which it has its properties: it cannot be realized without that world), *equivalent* to there being a possible world in which a counterpart of the real Adam (the counterpart in that world of Adam) did not sin.

Thus the same critical comment fits both Lewis' version of contingency and Leibniz': vicarious contingency is not genuine contingency. Besides being certainly not theologically satisfactory, vicarious

contingency is also not satisfactory *ethically*. 'Adolf could have done otherwise' – this, in order to express the ontological basis of the moral responsibility of Adolf for his deeds, must mean more than that there is somebody similar to, but not identical with, Adolf, who does otherwise in some possible world that is appropriately related to the real world.

2. SUPERETERNALISM AND CHANGE

After having considered an analogous issue, consider now the issue of supereternalism and change. The following statement is a temporal parallel to the modal (A):

> (D) If an object has at a time properties different from those it has now, it is at that time different from those it is now.

Prima facie this seems to be obviously true. But reflection reveals an ambiguity in it. If (D) is read in the sense of

> (D1) If an object has at a time properties different from those it has now, it is at that time *qualitatively different* from *what, qualitatively, it is* now,

then (D) is indeed obviously true. But if (D) is read in the sense of

> (D2) If an object has at a time properties different from those it has now, it is at that time *numerically different* from *what, numerically, it is* now,

then the truth of (D) is doubtful indeed. For in view of the fact that no object is ever numerically different from what it is numerically now (namely, *itself*), (D2) is nothing more or less than a more elaborate way of stating that no object ever has other properties than it has now, which is a claim of *supereternalism* (or perhaps better, but certainly longer: *supersempiternalism*).

Supereternalism flies even more in the face of intuition than does superessentialism, for supereternalism implies that at least *in a sense*, but *prima facie not at all* in a marginal sense, there is *no change*, and

hence it appears to be contradicted by everyone's direct experience which seems to demonstrate the existence of change at every turn.[4] But hardly any supereternalist in the history of philosophy has had the courage of Parmenides to deny outright that there is change, and consequently to count for nothing the testimony of experience.[5] A supereternalist will usually try to avoid the blunt claim that there is no change. The usual strategy is as follows: "Yes, in a certain sense of the word 'change' there is no change, but that is not the important sense. In the truly important sense, which is the sense that I have to offer and which is all the sense of 'change' we need," says our average supereternalist, "there is of course *change*."

What, then, can be the supereternalist's meaning of the word 'change'? *One* such meaning is encapsulated in the following two change-descriptions:

(E1) Let x be an object that does not now have the property f – some property that is *appropriate for change* (not all properties are *appropriate for change*: those which are *inappropriate* are at most good for so-called "Cambridge changes"). But it will change from not having f to having f, since there is some later time t and a *temporal counterpart* y of x at t that has the property f at t.

(E2) Let x be an object that now has the property f – some property that is appropriate for change. But it will change from having f to not having f, since there is some later time t and a temporal counterpart y of x at t that does not have the property f at t.

Thus there is a sense in which one can have change, although no object whatever changes in the sense that it ever has any other properties appropriate for change than those it has now. It is a curious concept of change, and yet supereternalists could think it to be *the* adequate concept of change. Indeed they could roundly reject the charge that they are supereternalists. "Of course," they could say, "we believe in objects that at other times have different properties than they have now. Almost every object is such an object." Looking closer, one would find that the objects that are alleged to have at other times other prop-

erties than they have now, are, in point of fact, taken by the supereter-
nalists to have these other properties merely *by analogy*, as the owner
of a dog may be said, in a sense, to have a tail, since his dog has a tail.
Undoubtedly, the relationship between the temporal counterparts of an
object and the object itself is in some sense closer than the relationship
between a dog-owner and his dog. This has the consequence that the
supposedly analogous *having of a property* may be said to be much
more similar to *properly having* (or *possessing*) *a property* than the
analogous *having of a tail* is similar to *properly having a tail*. Never-
theless, just as one can comment that the owner of the dog does not,
properly speaking, have a tail, one can also comment, that an object, if
supereternalism is correct, never ever has, *properly speaking*, other
properties than it has now; it has other properties only *by analogy*.

Let me briefly indicate how supereternalists can deal with a spe-
cial kind of change, namely *coming to be* and *passing away*. This kind
of change poses no special problem for them, but is subsumed under
(E1) and (E2), if *existence* is taken to be a property of objects that is
appropriate for change. Yet, to regard existence as a property of ob-
jects with respect to which they change, immediately implies, even
under (E1) and (E2), that there are objects that at some time do not
exist, that is: it implies *temporal possibilism*. Therefore, if supereter-
nalists deny temporal possibilism and affirm that all objects exist at all
times and nevertheless do not want to deny coming to be and passing
away, they must explicate *coming to be* and *passing away* in a differ-
ent way than by subsuming them under (E1) and (E2). Under *temporal
actualism*, existence, if a property at all, is quite obviously *not* a prop-
erty that is appropriate for change.

How can they do it? Thus:

(F1) An object x will come to be if there is no temporal counter-
     part of x now, but also a future time at which there is a tem-
     poral counterpart of x.[6]

(F2) An object x will pass away if there is a temporal counterpart
     of x now, but also a future time at which there is no temporal
     counterpart of x.[7]

3. PRINCIPLES AND THEOREMS OF TEMPORAL COUNTERPART THEORY

Let me state some principles for temporal counterpart theory – the theory which is the basis of a supereternalistic conception of change:

(G1) For every object x there is precisely one time t such that x is at t a temporal counterpart of x. (*Uniqueness of temporal location.*)

(G2) For every object x and time t there is at t at most one temporal counterpart of x. (*Uniqueness of a temporal counterpart.*)

(G3) For every object x, object y and time t: if y is at t a temporal counterpart of x and x is different from y, then x is at t not a temporal counterpart of y. (*Restricted asymmetry of the temporal counterpart relation.*)

(G4) For every object x, object y and time t: if y is at t a temporal counterpart of x, then y is at t a temporal counterpart of y. (*Locatedness of being a temporal counterpart.*)[8]

(G5) For every object x, object y, time t and time t': if x is at t a temporal counterpart of x and y is at t' a temporal counterpart of x, then x is at t a temporal counterpart of y. (*Reflection of the temporal counterpart relation over time.*)

(G6) For all objects x, y and z, times t, t': if x is at t a temporal counterpart of y, and y is at t' a temporal counterpart of z, then x is at t a temporal counterpart of z. (*Linking of temporal counterparts.*)

Note that the majority of these principles could not be justified by defining temporal counterparthood as a similarity concept. One might think of the following definition: x is at t a temporal counterpart of y $=_{\text{def}}$ x is a t-located object which is (*among all the t-located objects*) maximally similar to y, *presupposing* that for every object x there is precisely one time t such that x is a t-located object (which presupposition makes it possible to derive (G1)). But this definition does not help to establish (G2): why should not an object have at a time t *two or*

more t-located objects that are all maximally similar to it? Nor does it help to justify (G5): although y is a t'-located object that is maximally similar to x, and x is a t-located object (that is maximally similar to x), that does not mean that x is a t-located object that is maximally similar to y; there may be a t-located object that is more similar than x to y. And quite clearly, the definition does also not help to establish (G6).

Here are the two main theorems that follow from the stated principles:

> GT1: 'x is an object and y is an object and $\exists t'$ (t' is a time and x is at t' a temporal counterpart of y)', or in other words 'x is *simpliciter* a temporal counterpart of y' expresses an *equivalence relation* over objects.

> *Proof.*

> DEF1: $R(x, y) =_{\text{def.}} x$ is an object and y is an object and $\exists t'$ (t' is a time and x is at t' a temporal counterpart of y) [x is simpliciter a temporal counterpart of y].

Then: (1) For all objects x: $R(x, x)$ (according to (G1)). (2) For all x and y: $R(y, x) \supset R(x, y)$: Assume: $R(y, x)$; we have: x is at a time t a temporal counterpart of x (according to (G1)); hence according to (G5): $R(x, y)$. (3) For all x, y and z: $R(x, y)$ and $R(y, z) \supset R(x, z)$: Assume $R(x, y)$, $R(y, z)$; hence according to (G6): $R(x, z)$.

> GT2: If time is linearly ordered, then the set of all (at some time) temporal counterparts of any given object is timewise linearly ordered.

> *Proof.*
> Let r be any object. Consider the predicate 'Before$_r(y, z)$' which is defined as follows:

> DEF2: Before$_r (y, z) =_{\text{def}} R(y, r)$ and $R(z, r)$ and the time at which y is a temporal counterpart of itself is before the time at which z is a temporal counterpart of itself.

Assume that time is linearly ordered, that is, that the before-relation between times is transitive, irreflexive and *linear* over times (the latter

means that for all times t and t': t before t', or t' before t, or $t = t'$). It immediately follows on the basis of DEF1, DEF2 and (G1): (1) For every object x: not $Before_r (x, x)$. (2) For every object x, y and z: $Before_r (x, y)$ and $Before_r (y, z) \supset Before_r (x, z)$. What remains to be proved is: (3) For every object y and z such that $R(y, r)$ and $R(z, r)$: $Before_r (y, z)$ or $Before_r (z, y)$ or $y = z$.

Assume then: $R(y, r)$ and $R(z, r)$. Assume moreover: not $Before_r(y, z)$, not $Before_r (z, y)$. Hence by DEF2, (G1) and the linearity of time: the time at which y is a temporal counterpart of itself is the time at which z is a temporal counterpart of itself. By DEF1 and the assumptions: there is a time t' at which y is a temporal counterpart of r, and there is a time t'' at which z is a temporal counterpart of r. Hence by (G4): y is at t' a temporal counterpart of itself, and z is at t'' a temporal counterpart of itself. Hence by (G1) and what has already been deduced: $t' = t''$. Hence y is at t' a temporal counterpart of r, and z is at t' a temporal counterpart of r. Therefore according to (G2): $y = z$ (which was to be shown).

One may add another principle:

(G7) For all times t and t' and objects x: if there is at t a temporal counterpart of x and at t' also a temporal counterpart of x, then there are at all times between t and t' temporal counterparts of x. (*Density of temporal counterparthood.*)

(G7) has the consequence that for any object r the equivalence set {x: $R(x, r)$} ordered by $Before_r (y, z)$ is *isomorphic* to a certain time interval ordered by the before-relation between times (restricted to that interval). This is esthetically pleasing, but one may well wonder whether it is not too restrictive to postulate (G7).[9]

4. SUPERETERNALISM AND CHANGE FOR HIGHER ORDER OBJECTS

It goes without saying that the supereternalist's world of, *properly speaking, unchanging* objects that are related by a temporal counterpart relation is most strange. How do I, for example, fit into it, or even

ordinary material things? And, really, could the sense described above in which there is change in the supereternalist's world be even called '*ersatz* change'? Hardly. Even the usual supereternalist would admit that much – and would proceed to making his world somewhat less strange: to finding a fairly acceptable *ersatz* for the normal change of normal objects by considering *higher order objects*, namely certain sets of his basic objects. What are considered to be 'normal objects' – I shall call them 'Aristotelian objects', since they correspond to Aristotle's *first substances* – can be absorbed by these higher order objects in the following manner.

What I have hitherto simply called 'objects,' I shall from now on call '0-objects' (think of the word "object" as replaced by the word '0-object' in the above principles and definitions of temporal counterpart theory); certain *sets of 0-objects* I will call '1-objects'. In the supereternalist's eyes, *I*, Uwe Meixner, and other Aristotelian objects are of course *not* 0-objects, but rather *1-objects*: each Aristotelian object, according to the supereternalist, is a set of precisely the 0-objects related by the (simple, two-place) temporal counterpart relation to a *certain* 0-object; it is, in other words (according to GT1), an *equivalence set of that relation*: a *1-object*. The 0-objects in the sets that are 1-objects are precisely the (momentary) *temporal stages* of the 1-objects.

Since 1-objects are set-theoretic constructions out of 0-objects, one will define the 1-objects' having of properties in terms of the having of properties of 0-objects. As follows:

DEF3: Let x be a 1-object, f a property of objects, t a time: x has f at $t =_{\text{def.}}$ there is an element y of x [0-object y in x] such that y is at t a counterpart of y [y is located at t], and y has f at t [and this means, since we are talking about a 0-object, *at all times*].

Change for 1-objects can then be described as follows:

(H1) Let x be a 1-object that does not now have the property f – some property that is *appropriate for change*. But x will change from not having f to having f, since there is some later time t at which x does have f.

(H2) Let x be a 1-object that now has the property f – some prop-

> erty that is appropriate for change. But it will change from
> having f to not having f, since there is some later time t at
> which x does not have the property f.

What is remarkable about (H1) and (H2) is that these change-
descriptions *sound* just like normal change-descriptions. Moreover, on
the basis that 1-objects are equivalence-sets of simpliciter temporally
counterpart-related 0-objects and on the basis of DEF3, (H1) and (H2)
are *acceptable* to the supereternalist, since 1-objects and their having
of properties are mere *logical constructions* out of 0-objects and *their*
having of properties. Therefore, the admission of a 1-object that
changes in the sense of (H1) or (H2), basically, merely amounts to
admitting that some different temporal counterparts of some 0-object
have differing properties appropriate for change – which, of course, is
true for a supereternalist.

Thus, the supereternalist can, in large measure, reconstruct our
normal conception of change by simply *identifying* Aristotelian objects
with certain 1-objects. This has the consequence that DEF3 becomes
applicable to Aristotelian objects as well, and the principles (H1) and
(H2) *for normal objects* can then be immediately derived from (H1)
and (H2) for 1-objects. But (H1) and (H2) for normal, Aristotelian
objects simply state our normal conception of future-directed change.

The crucial question is of course: why should Aristotelian objects
– as U.M., this table, this chair, this building – be identified with 1-
objects? The supereternalist has an answer to this question: Aristote-
lian objects correspond one-to-one to the sets of their momentary tem-
poral stages.[10] "A one-to-one correspondence is an opportunity for re-
duction," as David Lewis so aptly remarks in a different context.[11]
Hence Aristotelian objects, says the supereternalist, can be, first of all,
identified with the sets of their momentary temporal stages. And in
addition, says the supereternalist, *if* we assume the following plausible
principles:

> (G8) If m is a momentary temporal stage of an Aristotelian object,
> then m is a 0-object. (*Category of temporal stages.*)

> (G9) If m is a momentary temporal stage of an Aristotelian object
> k and z is simpliciter a temporal counterpart of m, then z is

also a momentary temporal stage of *k*. (*Propagation of temporal stagehood by the temporal counterpart relation.*)

(G10) If *m*' and *m* are momentary temporal stages of an Aristotelian object *k*, then *m*' is simpliciter a temporal counterpart of *m*. (*Joining of temporal stages by the temporal counterpart relation.*)

If we assume these principles, then, says the supereternalist, we have the theorem

GT3: If *M* is the set of the momentary temporal stages of an Aristotelian object, then there is a 0-object *y* such that: $\forall z$ (*z* is simpliciter a temporal counterpart of *y* iff $z \in M$).

Proof.
Let *M* be the set of the momentary temporal stages of an Aristotelian object, say, *k*. Consider some momentary temporal stage *m* of *k* (there must be such stage, otherwise *k* would not be an Aristotelian object). Since *m* is a momentary temporal stage of an Aristotelian object, we have by (G8): *m* is a 0-object.

(1) Assume *z* is simpliciter a temporal counterpart of *m*; hence by (G9): *z* is a momentary temporal stage of *k*, hence $z \in M$.

(2) Assume $z \in M$, hence *z* is a momentary temporal stage of *k*; *m* is also a momentary temporal stage of *k*; hence by (G10): *z* is simpliciter a temporal counterpart of *m*.

But GT3, the supereternalist continues, has the corollary

GT4: If *M* is set of the momentary temporal stages of an Aristotelian object, then *M* is a 1-object.

Proof.
Assume *M* is the set of the momentary temporal stages of an Aristotelian object. Hence by GT3: there is a 0-object *y* such that: $\forall z$ (*z* is simpliciter a temporal counterpart of *y* iff $z \in M$). Hence there is a 0-object *y* such that {*z*: *z* is simpliciter a temporal counterpart of *y*} = *M*. Hence *M* is a 1-object (according to the definition of 1-objects).

Clearly, it is an immediate consequence of GT4 *that Aristotelian objects are 1-objects* if Aristotelian objects are each identified with the set of their respective momentary temporal stages (and the supereter-

nalist has already argued that they can be identified with their respective sets of momentary temporal stages).

5. RESISTING REDUCTION?

Many philosophers would find the absorption of Aristotelian objects by 1-objects attractive. For the supereternalist, of course, this absorption is a highly desirable achievement that enables him to preserve at least *the letter* of normal change descriptions. But, considered apart from the supereternalist's intuitions, the absorption of Aristotelian objects by 1-objects is far from being a natural option. What, then, makes it so attractive?

Presumably, it is the lure of reductionism. Here you have a one-to-one correspondence between Aristotelian objects and certain equivalence sets of 0-objects related to each other by the (simple) temporal counterpart relation. Hence one has the opportunity of identifying Aristotelian objects with those sets, and in doing so, one would dispense with one *extra* ontological category and the correlative *extra* existence assumption. Is there, in the case at hand, some good reason to resist the lure of reductionism, so persuasively sanctioned by *Ockham's razor*, which is widely held to be an entirely unproblematic methodological principle?

Of course, it is *prima facie* implausible that Aristotelian objects are sets. I am not a set, I believe. But common sense does not count much with scientifically-oriented philosophers.

It is possible to attack the basis of the reduction, and some philosophers who are non-reductionists with respect to Aristotelian objects, for example Peter Geach,[12] have, essentially, pursued the following strategy: what *strange* things, after all, are 0-objects, on which the 1-objects are set-theoretically based – the sets with which the Aristotelian objects are to be identified according to the supereternalists. Apparently, one can give examples of 0-objects standing in the temporal counterpart relation at a time only by referring at the same time to Aristotelian objects, since one can name a 0-object only by collaterally referring to an Aristotelian object of which the named 0-object is a

momentary temporal stage: 'Bill-Clinton-at-t is at t a temporal counterpart of Bill-Clinton-at-t', just as Bill-Clinton-at-t' is at t' a temporal counterpart of Bill-Clinton-at-t' – it seems one cannot state the exact objective content of this sentence (the objective state of affairs intended by it) without referring to Bill Clinton, an Aristotelian object. Moreover, it seems that only because we have a fairly good independent idea of what Aristotelian objects are and, derivatively, what their momentary temporal stages are, that we are able to give, via the above principles (G8) – (G10), some substantial content to the temporal counterpart relation (setting (G8)–(G10) aside, that relation has merely been characterized *formally*).

Yet, one may well ask how seriously the mentioned conceptual facts, if they are such, are to be taken ontologically. They may well have more to do with everyday epistemology than with *scientific* ontology. Supereternalists will defend themselves along this line and argue in the following manner: Nobody doubts that 0-objects can *presently* only be referred to via Aristotelian objects; that is just the way our language currently is. Our dependence on Aristotelian objects need not reveal a deep ontological fact, but in fact merely reflects the working ontology that human beings have found useful in communicating with each other about their everyday normal environment in the course of thousands of years. What they have found useful, the "surface ontology," need not be the ultimate truth of the matter, the "deep ontology". Indeed, it isn't the ultimate truth of the matter, as modern science has taught us, and language, specifically its machinery of reference, will change accordingly, in due time. Thus the supereternalists.

I will not discuss here whether modern science has indeed taught us the ontologically secondary nature of Aristotelian objects. That is a claim that is hardly less controversial than the claim that modern science has revealed, or rather *will* reveal, the obsoleteness of so-called "folk-psychology". I will not offer arguments *against* asserting the ontologically secondary nature of Aristotelian objects, and *for* upholding their primacy, but rather concentrate on a quite non-Geachean (and non-Strawsonian)[13] attack against supereternalistic reductionism.

For the sake of the argument, then, let 0-objects be accepted, and their standing in the temporal counterpart relation to each other, and let

this relation be governed by the ten principles given above (with the possible exception of (G7)). Let 1-objects be accepted – these set-theoretical constructions out of 0-objects – and let Aristotelian objects correspond one-to-one to certain 1-objects. In a word, let us accept the whole *basis* for reducing Aristotelian objects to 1-objects. Are there reasons, then, why we should resist reducing them to 1-objects *nevertheless*, and reasons which are independent of considerations of the possible ontological primacy of Aristotelian objects, an ontological primacy which so many philosophers nowadays are unwilling to believe in?

If such reasons are not to be sought in considerations of the ontological primacy of Aristotelian objects, then such reasons can only be found in considering some important function Aristotelian objects can perform, but not their reductive counterparts, the corresponding 1-objects. At this point, it is again helpful to look at the modal analogy.

6. MODAL CONTINUANTS

The basic idea behind superessentialism is often that a (any) *possible object* is, basically, nothing more than the sum (or set) of the properties it has at *its* possible world.[14] The basic idea behind supereternalism is often that a *real object* is, basically, nothing more than the sum (or set) of the properties it has at *its* moment of time in the real world.[15] The crucial principles

(A2) If an object had properties different from those it has in fact, it would be *numerically different* from *what, numerically, it is* in fact (or in other words: different *from itself*)

(D2) If an object has at a time properties different from those it has now, it is at that time *numerically different* from *what, numerically, it is* now (or in other words: *different from itself*)

can be seen to follow from these basic ideas, if 'object' is interpreted as meaning the same as 'possible object' in (A2), and as meaning the same as 'real object' in (D2):

Concerning (A2): Assume *x is a possible object*; hence (according to the usual basic idea of *superessentialism*) x is, basically, nothing more than $_{w(x)}M_x$ and can be *identified* with $_{w(x)}M_x$, which is the set of properties x has at *its* possible world $w(x)$. Since x is nothing more than $_{w(x)}M_x$, but we nevertheless want to talk about the properties x *has* (*properly speaking* and not vicariously) at other worlds, the only reasonable choice is to proceed on the basis of the following principle: For all worlds w': $_{w'}M_x = {}_{w(x)}M_x$. Hence: for all worlds w': $_{w'}M_x = {}_{\text{reality}}M_x$. Hence: *for all worlds w': if $_{w'}M_x \neq {}_{\text{reality}}M_x$, then $x \neq x$.*

Concerning (D2): assume *x is a real object*; hence (according to the usual basic idea of *supereternalism*) x is, basically, nothing more than $_{t(x),\text{reality}}M_x$ and can be *identified* with $_{t(x),\text{reality}}M_x$, which is the set of properties x has in the real world at *its* moment of time $t(x)$. Since x is nothing more than $_{t(x),\,\text{reality}}M_x$, but we nevertheless want to talk about the properties x *has* (*properly speaking* and not vicariously) in the real world at times other than $t(x)$, the only reasonable choice is to proceed on the basis of the following principle: For all moments of time t': $_{t',\text{reality}}M_x = {}_{t(x),\,\text{reality}}M_x$. Hence: for all times t': $_{t',\text{reality}}M_x = {}_{\text{now, reality}}M_x$. Hence: *For all times t': if $_{t',\text{reality}}M_x \neq {}_{\text{now, reality}}M_x$, then $x \neq x$.*

Conversely, if we hold that some possible object is something *over and above* the properties it has at possible worlds, and that some real object is something *over and above* the properties it has (in the real world) at moments of time, then we are denying not only the mentioned basic ideas behind (A2) and (D2), but also, quite clearly, these principles themselves, and therefore superessentialism and supereternalism. For if some possible object is something over and above the properties it has at possible worlds, then we *should conclude* that for at least one possible object x we have $_{w'}M_x \neq {}_wM_x$ for at least some worlds w and w'; and if some real object is something over and above the properties it has at moments of time, then we *should conclude* that for at least one real object x we have $_{t',\text{reality}}M_x \neq {}_{t,\,\text{reality}}M_x$ for at least some times t and t'.

But why should we, in the first place, hold that some possible object is something over and above the properties it has at possible worlds? Or in other words, why should we think that some possible object is a *modal continuant*? We should believe this for the following reason: because there are relational properties of some possible objects

that are *not* reducible to properties those objects have *within* or *at* possible worlds.

Consider the relation of *realizing* part of a possible world. This relation can be either taken *causally* or *cognitively*; if it is taken causally, it means as much as *making real* or *making actual*; if it is taken cognitively, it means as much as *cognizing as real* or *cognizing as actual*. Of course, one can say that a human person x, for example, realizes *at possible world* w part y of w; but the point is that one can say this only because, and in the conceptual order *after*, one can simply say *that x realizes part y of w*; the latter form of expression is the primary form, the former merely secondary and, as it were, epiphenomenal. Suppose, then, that person x realizes part y of world w; from this, there follows not merely the triviality that y is actual at w, but that y is *actual simpliciter*. Quite clearly, the following relational property of person x, the property of realizing part y of w, is irreducible (1) to the properties x has (properly speaking) *at possible worlds other than w*. But it is also irreducible (2) to the properties x has (properly speaking) *at w*, the reason being that what properties x has at w does not determine, not even partially, which of those properties are *simpliciter actual* or *simpliciter real* properties of x, while x's partially realizing w *does* indeed partially determine this,[16] no matter even whether we understand *realizing* in the sense of *causally realizing* or in the sense of *cognitively realizing*.

The force of this argument is that possible objects that are *true* (namely, literally *reality-making*) *agents* and *true* (namely, literally *reality-cognizing*) *cognizers* have to be modal continuants. Not all objects, of course, can be plausibly held to be true agents and cognizers, but persons, certainly, are traditionally conceived to be such. They *do their deeds* and they *gain factual knowledge*, and *thereby* contribute to determining what is *simpliciter real*. Therefore, what is *in* this world or *in* another cannot completely determine what they *are*, since it does not even contribute to determining what is *simpliciter real*. Persons are, to put it in a word, *world-transcendent*.[17] And this means, in particular, that persons are over and above the properties they have at possible worlds: they are modal continuants.

Hence, unless we want to give up our traditional way of understanding ourselves, a way that does not allow that *doers* and *knowers*

be absorbed entirely by the field that their doing and knowing is directed at, we have good reason to believe that there are modal continuants, namely ourselves. I am, of course, aware of the fact that the general philosophical climate in recent years is inimical to the traditional conception; what I would deny is that endorsing this climate, the climate of naturalism, is the only rational option.

7. TEMPORAL CONTINUANTS

There remains the question of *temporal continuants*. Why should we hold that some real object is a temporal continuant, that is, something which is over and above the properties it has in the real world at moments of time? If we have good reason for believing this, then, besides having a weighty argument against supereternalism, we also have good reason for believing that some real objects are irreducible Aristotelian objects, objects that, even though they correspond one-to-one to the set-theoretically constructed 1-objects, are not reducible to them, and therefore not reducible to the momentary 0-objects which the 1-objects are constituted by.[18] And if there are irreducible Aristotelian objects, then there is also *genuine* change, and not merely *ersatz* change; and given a cogent *argument* for the existence of temporal continuants or irreducible Aristotelian objects, we would also gain an understanding of what, in the first place, genuine change truly consists in, and of what makes it truly different from *ersatz* change.

　　This is the argument. It is modeled on the argument for the existence of modal continuants: *We* (certain real objects) are not reducible to the properties we have in the real world at moments of time (and *therefore* not reducible to 1-objects: certain sets of temporally counterpart-related momentary 0-objects that in their turn can, indeed, each be identified with the set of properties they have in the real world at their respective moment of time) because we have certain relational properties that are not reducible to the properties we have in the real world at moments of time, whether those moments be taken individually or collectively. Consider the relation of *being aware of a moment of time as present*. Suppose person *x*, anyone of us, stands in that rela-

tion to a certain moment of time, is aware of moment t as present. The relational property x has, the property of being aware of time t as present, is quite obviously irreducible to the properties x has (properly speaking) in the real world *at other moments of time than t*. But it is also irreducible to the properties x has (properly speaking) in the real world *at t*, for these properties have nothing whatever to do with t being present or not: x has those properties in the real world at t, no matter whether t is present or not; it will still have these very same properties in the real world at t after t has been present, and it already had these very same properties in the real world at t before t became present. Just as *being present* is not a temporally located real-world-property of moment t (in contrast to the property *being present at t*), but rather what may be called a *fleeting* property of it,[19] so *being aware of moment t as present* is not a temporally located real-world-property of x. It is a *fleeting* property of x, and therefore not reducible to temporally located real-world properties of x, that is, not reducible to properties x has (properly speaking) in the real world at moments of time. Of course, we can also say, if we want to, speaking somewhat improperly, that x has *in the real world at t* the property of being aware of t as present; but the point is that we can say this only because, and in the conceptual order *after*, we can simply say that x has the property of being aware of t as present.

8. A METAPHYSICAL PICTURE

Perhaps a simile or conceptual picture can serve to illustrate all these metaphysical matters at once. Being modal and temporal continuants, *we* are outside the realm of all possible worlds, including the real world. We are looking as if into a landscape that is mainly dusky, but where a point of light is moving in one direction along a certain path. We know there are alternative paths out there in the dusk, but here we have the path the point of light in fact takes. We also know that it depends partially on our own choosing which path the point of light takes. As the point of light moves on, we see, in a flash, *ourselves* on the path, or rather, properly speaking, not ourselves but innerworldly

momentary static representations of us. These momentarily illuminated representations are always different, yet always representations *of us*; each belongs to precisely one of us. Considering those representations, we say, and it is literally true, *that we are changing*, whereas, indeed, our representations do not change, they always have the same inner-worldly properties (that they are illuminated and then recede into darkness is a process which does not involve innerworldly properties). We know, moreover, that each of us *is not* the sum of all the at-some-time-or-other-illuminated representations that belong to him or her, but is only *represented, in toto*, by this sum; that this sum does not, properly speaking, change either. Considering the shadowy representations of ourselves of which we become more or less dimly aware beside the path that the point of light is taking, we say, and it is literally true, *that we might and even could have been (qualitatively) different*. Our representations, however, could not have been different; being *these* representations, they could not have had other innerworldly properties than they have. We know, moreover, that each of us *is not even* the sum of all the representations of himself or herself that could, in principle, have been illuminated by the point of light; this sum is merely the total space of one's innerworldly possibilities; and it could not have been different either (nor could one have had a different one). As modal and temporal continuants, we are beyond *all that and its like*: beyond *the innerworldly realm* – and yet, undoubtedly, deeply involved with it.[20]

Notes

[1] There also is a deeper reason, and certainly one that is more credibly a reason *of* Leibniz or Lewis, for their position. See section 6 below.

[2] To my mind, Lewis' argument against *literal* trans-world identity, and *mutatis mutandis* against *literal* trans-time identity, *literal* identity over time, (see Lewis [1987], p.199ff, p.202ff, p.210) are far from convincing. The arguments have the following two contestable presuppositions: (1) If *literally the same* object x existed *wholly* at two worlds, respectively: two times, then, unacceptably, it would be a part of both worlds, respectively times (or in other words: then both worlds, and both times, would *overlap* in x). (2) If *literally the same object* x had, as a whole, an intrinsic property f at a world w [time t], and not at a world w' [time t'], then f would,

unacceptably, not be an intrinsic property of *x* at *w* [at *t*] after all, but a relation *x* bears to *w* [to *t*]. Here, I submit, the most promising denials of (1) and (2): concerning (1), literally the same object may exist wholly at two worlds [times] *without* being a part of either of them via its respective *representative* at each of the two worlds [times]. Concerning (2), literally the same object *x* may as a whole have an intrinsic property, *without* "relationalizing" it, at one world [time], and not at another, since its *representative* at the one world [time] has it, while at the other world [time] there is no *x*-representative that has it. (Here '*z* being the representative of object *x* at world *w* [at time *t*]' expresses an *intrinsic and essential* relation between *z*, *x* and *w* [*t*]. For more, see sections 6 to 8 of this paper.)

[3] Gerhardt [1978], II, p.47ff.

[4] The existence of contingency is only demonstrated by experience to the extent that it demonstrates the existence of change, and this means that the existence of contingency is demonstrated by experience, if at all, only for *some* concepts of contingency, certainly not for all. For example, if an object *x* will change from having property *f* now to not having property *f* later, this means that its having of property *f* is *not necessary* in each sense of that word that implies *that what is necessary is always the case at any time in the future*.

[5] Another past supereternalist, very different from Parmenides, was Hume. See footnote 15.

[6] Note that *newly coming to be* should be distinguished from *coming to be* simpliciter. (F1) fits the latter.

[7] Note that *definitely passing away* should be distinguished from *passing away* simpliciter. (F2) fits the latter.

[8] Note that (G3) follows from (G4) and (G2). Note also that (G2*): every object *x* is at any time *t* temporal counterpart of *at most* one object, cannot be maintained; for this according to (G4) would imply the undesirable result that every object is at any time at most a temporal counterpart of itself. (G2*) is also untenable in view of (G5) and (G6) below.

[9] (G7) would exclude *higher order objects* (see below) that "reappear" after a stretch of time in which they "were not there at all."

[10] Note that talking about the temporal stages of an Aristotelian object *does not per se* mean that those stages are *temporal parts* of the Aristotelian object.

[11] Lewis [1986], p.245.

[12] Cf. Geach [1972]. In Meixner [1997], p.203, I am critical of the force of Geach's criticism.

[13] Cf. Strawson [1959], Chapter 1.

[14] As is well known, this idea is strongly suggested by Leibniz's philosophy.

[15] This idea is clearly visible in the following passage from an outstanding supereternalist: "[O]ur ideas of bodies are nothing but collections formed by the mind of the ideas of the several distinct sensible qualities, of which objects are composed, and which we find to have a constant union with each other. But however these qualities may in themselves be entirely distinct, it is certain we commonly regard the compound, which they form, as *one* thing, and as continuing the *same* under very considerable alterations. [...] The smooth and uninterrupted progress of the thought,

being alike in both cases [that of a "succession of related qualities," and that of "one continued object, existing without any variation"], readily deceives the mind, and makes us ascribe an identity to the changeable succession of connected qualities." (David Hume, *A Treatise of Human Nature*, Book I, Part III, Section III, p.270 of MacNabb (ed.) [1987].) In the quoted passage, we also find, very apparent, the blending of numerical with qualitative identity (over time), which is a consequence of the mentioned idea and which makes Hume implicitly subscribe to the following supereternalistic principle: if object x has at moment t other qualities than object y has at moment t', then $x \neq y$. (Note that if 't'' is replaced by 't', we have a principle that is entirely uncontroversial.)

[16] To make this more palpable, consider a typical way x *qua* human person is involved with world w. For example: x lifts his hand in w. Now, x's partially (*causally) realizing* w may well turn this into: x (*simpliciter really*) lifts his hand (and thus: lifting his hand is a *simpliciter actual* property of x). If it does so, then x is causally responsible (in an absolute sense) for the (simpliciter real) lifting of his hand; if it does not, x is not causally responsible for it. (The talk of responsibility here must not blind one to the fact that the crucial point in the argument is not contingency, or freedom of the will, but the imparting of reality or actuality *in an absolute sense*: world-bound individuals are not up to this.)

[17] The world-transcendence of persons and other substances is argued for in much greater detail in Meixner [1997a].

[18] It would be implausible to hold that *all* Aristotelian objects are irreducible. In fact, there is no reason to hold that *inanimate* Aristotelian objects are irreducible.

[19] Note the contrast in content between the sentences 't_1 is present at t_1' and 't_1 is present' (the first sentence is true at all time, the second only at t_1). It is also important for the argument to realize that the latter sentence cannot be synonymous with the sentence 't_1 is the time (or belongs to the time) of *this* utterance'. The reasons for this are: (1) The *moment* of time t_1, having no extension, cannot be the time of an utterance (and if it *belongs* to the time of an ongoing utterance of 't_1 belongs to the time of this utterance' or of 't_1 is present', it may nevertheless not be *present*, but, instead, a later or earlier moment of time). (2) There might not be any utterance at (incorporating) t_1 at all, while t_1 is nevertheless *present*.

[20] In discussion, Kit Fine offered the following illuminating analogy: the builders of a house (realizers of a world) cannot be parts of it. I would merely add: nor can they be parts of the totality of all possible houses that might be built.