Actualism and possible worlds

by

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THE IDEA of possible worlds has both promised and, I believe, delivered understanding and insight in a wide range of topics. Pre-eminent here, I think, is the topic of broadly logical possibility, both *de dicto* and *de re*. But there are others: the nature of propositions, properties, and sets; the function of proper names and definite descriptions; the nature of counterfactuals; time and temporal relations; causal determinism; in philosophical theology, the ontological argument, theological determinism, and the problem of evil (see [7], chapters IV—X). In one respect, however, the idea of possible worlds may seem to have contributed less to clarity than to confusion; for if we take this idea seriously, we may find outselves committed to the dubious notion that there are or could have been things that do not exist. Let me explain.

I. *The canonical conception of possible worlds*

The last quarter century has seen a series of increasingly impressive and successful attempts to provide a semantical understanding for modal logic and for interesting modal fragments of natural language (see, for example [4]; [5], p. 169; and [6]). These efforts suggest the following conception of possible worlds: call it 'the Canonical Conception'. Possible worlds themselves are typically 'taken as primitive', as the saying goes: but by way of informal explanation it may be said that a possible world is a *way things could have been*—a *total* way. Among these ways things could have been there is one—call it 'α'—that has the distinction of being actual; this is the way things actually are. α is the one possible world that obtains or is actual; the rest are merely possible. Associated with each possible world W, furthermore, is a set of individuals or objects: the *domain* of W, which we may call

'$\psi(W)$'. The members of $\psi(W)$ are the objects that *exist in* W; and of course different objects may exist in different worlds. As Kripke put it in [4], p. 65,

> Intuitively, $\psi(W)$ is the set of all individuals existing in W. Notice, of course, that $\psi(W)$ need not be the same set for different arguments W, just as, intuitively, in worlds other than the real one, some actually existing individuals may be absent, while new individuals ... may appear.[1]

Each possible world W, then, has its domain $\psi(W)$; but there is also the union—call it U—of the domains of all the worlds. This set contains the objects that exist in α, the actual world, together with those, if any, that do not exist in α but do exist in other possible worlds.

On the Canonical Conception, furthermore, *propositions* are thought of as set-theoretical entities—sets of possible worlds, perhaps, or functions from sets of worlds to truth and falsehood. If we think of propositions as sets of worlds, then a proposition is true in a given world W if W is a member of it. *Necessary* propositions are then the propositions true in every world; possible propositions are true in at least one world; impossible propositions are not true in any. Still further, the members of U are thought of as *having properties* and *standing in relations* in possible worlds. Properties and relations, like propositions, are set-theoretic entities: functions, perhaps, from possible worlds to sets of n-tuples of members of U. If, for simplicity, we ignore relations and stick with properties, we may ignore the n-tuples and say that a property is a function from worlds to sets of members of U. A property P, then, has an *extension* at a given world W: the set of objects that is the value of P for that world W. An object has a property P in a world W if it is in the extension of P for W; and of course an object may have different properties in different worlds. In the actual world, W. V. Quine is a distinguished philosopher; but in some other world he lacks that property and is instead, let us say, a distinguished politician. Modal properties of objects may

[1] For the sake of definiteness I substantially follow the semantics developed in this piece. The essentials of the canonical conception, however, are to be found not just here but in very many recent efforts to provide a semantics for modal logic or modal portions of natural language.

now be explained as much like modal properties of propositions: an object x has a property P *accidentally* or *contingently* if it has P, but does not have P in every possible world; thus the property of being a philosopher is accidental to Quine. X has P *essentially* or *necessarily*, on the other hand, if x has P in every possible world. While *being a philosopher* is accidental to Quine, *being a person*, perhaps, is essential to him; perhaps there is no possible world in which he does not have that property.

Quantification with respect to a given possible world, furthermore, is over the domain of that world; such a proposition as

(1) $(\exists x)$ x is a purple cow

is true in a given world W only if $\psi(W)$, the domain of W, contains an object that has, in W, the property of being a purple cow. To put it a bit differently, (1) is true, in a world W, only if there is a member of U that is contained in the extension of *being a purple cow* for W and is also contained in $\psi(W)$; the fact, if it is a fact, that some member of U not contained in $\psi(W)$ has the property of being a purple cow in W is irrelevant. And now we can see how such propositions as

(2) $\Diamond(\exists x)$ x is a purple cow

and

(3) $(\exists x) \Diamond$ x is a purple cow

are to be understood. (2) is true if there is a possible world in which (1) is true; it is therefore true if there is a member of U that is also a member of $\psi(W)$ for some world W in which it has the property of being a purple cow. (3), on the other hand, is true if and only if $\psi(\alpha)$, the domain of α, the actual world, contains an object that in some world W has the property of being a purple cow. (2), therefore, would be true and (3) false if no member of $\psi(\alpha)$ is a purple cow in any world, but some member of U exists in a world in which it is a purple cow; (3) would be true and (2) false if some member of $\psi(\alpha)$ is a purple cow in some world, but no member of U is a purple cow in any world in which it exists.

Now here we should pause to celebrate the sheer ingenuity of this scheme. Life is short, however; let us note simply that the Canonical

Conception is indeed ingenious and that it has certainly contributed to our understanding of matters modal. In one regard, however, I think it yields confusion rather than clarity: for it suggests that there are things that do not exist. How, exactly, does the question of non-existent objects rear its ugly head? Of course the Canonical Scheme does not as such tell us that there are some objects that do not exist; for perhaps $\psi(\alpha)$, the domain of the actual world, coincides with U. That is, the Canonical Conception does not rule out the idea that among the possible worlds there are some in which exists everything that exists in any world; and for all the scheme tells us, α may be just such a world. There is, however, a very plausible proposition whose conjunction with the Canonical Conception entails that $\psi(\alpha) \neq U$. It is certainly plausible to suppose that there could have been an object distinct from each object that does in fact exist; i.e.,

(4) Possibly, there is an object distinct from each object that exists in α.

If (4) is true, then (on the Canonical Scheme) there is a possible world W in which there exists an object distinct from each of the things that exists in α. $\psi(W)$, therefore, contains an object that is not a member of $\psi(\alpha)$; hence the same can be said for U. Accordingly, U contains an object that does not exist in α; this object, then, does not exist in the actual world and hence does not exist. We are committed to the view that there are some things that don't exist, therefore, if we accept the Canonical Conception and consider that there could have been a thing distinct from each thing that does in fact exist.

And even if we reject (4), we shall still be committed, on the canonical scheme, to the idea that there *could have been* some non-existent objects. For surely there are possible worlds in which you and I do not exist. These worlds are impoverished, no doubt, but not on that account impossible. There is, therefore, a possible world W in which you and I do not exist; but then $\psi(W) \neq U$. So if W had been actual, U, the set of possible objects, would have had some members that do not exist; there would have been some nonexistent objects. You and I, in fact, would have been just such objects. The canonical conception of possible worlds, therefore, is committed to the idea that there are or could have been nonexistent objects.

II. *The actualist conception of possible worlds*

I said that the canonical conception of possible worlds produces confusion with respect to the notion of nonexistent objects. I said this because I believe there neither are nor could have been things that do not exist; the very idea of a nonexistent object is a confusion, or at best a notion, like that of a square circle, whose exemplification is impossible. In the present context, however, this remark may beg some interesting questions. Let us say instead that the Canonical Conception of possible worlds exacts a substantial ontological toll. If the insight and understanding it undeniably provides can be achieved only at this price, then we have a reason for swallowing hard, and paying it—or perhaps a reason for rejecting the whole idea of possible worlds. What I shall argue, however, is that we can have the insight without paying the price. (Perhaps you will think that this procedure has, in the famous phrase, all the advantages of theft over honest toil; if so, I hope you are mistaken.) Suppose we follow Robert Adams ([1], p. 211) in using the name 'Actualism' to designate the view that there neither are nor could be any nonexistent objects. Possible worlds have sometimes been stigmatized as "illegitimate totalities of undefined objects"; from an actualist point of view this stigmatisation has real point. But suppose we try to remove the stigmata; our project is to remain actualists while appropriating what the possible worlds scheme has to offer. I shall try to develop an actualist conception of possible worlds under the following five headings:

(1) worlds and books;
(2) properties;
(3) essence and the α-transform;
(4) domains and propositions,
and
(5) essences and truth conditions.

1. *Worlds and books.* We begin with the notion of *states of affairs.* It is obvious, I think, that there are such things as states of affairs: for example, *Quine's being a distinguished philosopher*. Other examples are *Quine's being a distinguished politician*, *9's being a prime number*,

and the state of affairs consisting in all men's being mortal. Some states of affairs—*Quine's being a philosopher* and *7+5's being 12* for example—obtain or are actual. *Quine's being a politician*, however, is a state of affairs that is not actual and does not obtain. Of course it isn't my claim that this state of affairs *does not exist*, or that there simply is no such state of affairs; indeed there is such a state of affairs and it exists just as serenely as your most solidly actual state of affairs. But it does not obtain; it isn't actual. It *could have been* actual, however, and had things been appropriately different, it *would* have been actual; it is a *possible* state of affairs. *9's being prime*, on the other hand, is an impossible state of affairs that neither does nor could have obtained.

Now a possible world is a possible state of affairs. But not just any possible state of affairs is a possible world; to achieve this distinction, a state of affairs must be *complete* or *maximal*. We may explain this as follows. Let us say that a state of affairs S *includes* a state of affairs S^* if it is not possible that S obtain and S^* fail to obtain; and let us say that S *precludes* S^* if it is not possible that both obtain. A maximal state of affairs, then, is one that for every state of affairs S, either includes or precludes S. And a possible world is a state of affairs that is both possible and maximal. As on the Canonical Conception, just one of these possible worlds—α—has the distinction of being such that every state of affairs it includes is actual; so α is the actual world. Each of the others *could have been* actual but in fact is not. A possible world, therefore, is a state of affairs, and is hence an abstract object. So α, the actual world, is an abstract object. It has no center of mass; it is neither a concrete object nor a mereological sum of concrete objects; indeed α, like *Ford's being ingenious*, has no spatial parts at all. Note also that we begin with the notions of possibility and actuality for states of affairs. Given this explanation of possible worlds, we couldn't sensibly go on to explain possibility as inclusion in some possible world, or actuality as inclusion in the actual world; the explanation must go the other way around.

It is also obvious, I believe, that there are such things as *propositions*—the things that are true or false, believed, asserted, denied, entertained, and the like. That there are such things is, I believe, undeniable; but questions may arise as to their nature. We might ask, for example, whether propositions are sentences, or utterances of sentences, or equivalence classes of sentences, or things of quite another sort. We might also ask whether they are *states of affairs*: are there really *two* sorts of things, propositions and states of affairs, or only one? I am inclined to the former view on the ground that propositions have a property—truth or falsehood—not had by states of affairs. But in any event there are propositions and there are states of affairs; and what I say will be true, I hope, even if propositions just are states of affairs.

We may concur with the Canonical Conception in holding that propositions are true or false *in* possible worlds. A proposition p is true in a state of affairs S if it is not possible that S be actual and p be false; thus

(5) Quine is a philosopher

is true in the state of affairs *Quine's being a distinguished philosopher*. A proposition p is true in a world W, then, if it is impossible that W obtain and p be false; and the propositions true-in-α, evidently, are just the true propositions. Here, of course, it is *truth* that is the basic notion. Truth is not to be explained in terms of truth-in-the-actual-world or truth-in-α; the explanation goes the other way around. Truth-in-α, for example, is to be defined in terms of truth plus modal notions. The set of propositions true in a given world W is the *book* on W. Books, like worlds, have a maximality property: for any proposition p and book B, either B contains p or B contains $\bar{p}$, the denial of p. The book on α, the actual world, is the set of true propositions. It is clear that some propositions are true in exactly one world;

(6) α is actual,

for example, is true in α and α alone. If we wish, therefore, we can take a book to be, not a set of propositions, but a proposition true in just one world.

2. *Properties*. On the canonical conception, objects have properties in worlds. As actualists we may endorse this sentiment: an object x has a property P in a world W if and only if it is not possible that W

be actual and x have the complement of P. We *are* obliged, however, to reject the Canonical Conception of properties. On that conception, a property is a set-theoretical entity of some sort: perhaps a function from worlds to sets of individuals. This conception suffers from two deficiencies. In the first place, it entails that there are no distinct but necessarily coextensive properties—i.e., no distinct properties P and P^* such that there is no world W in which some object has P but not P^*. But surely there are. The property of being the square of 3 is necessarily coextensive with the property of being $\int_0^3 x^2 dx$; but surely these are not the very same properties. If the ontological argument is correct, the property of knowing that God does not exist is necessarily coextensive with that of being a square circle; but surely these are not the *same* property, even if that argument is correct.

The second deficiency is more important from the actualist point of view. Clearly enough the property of being a philosopher, for example, would have existed even if one of the things that *is* a philosopher —Quine, let's say—had not. But now consider the Canonical Conception: on this view, *being a philosopher* is a function from possible worlds to sets of individuals; it is a set of ordered pairs whose first members are worlds and whose second members are sets of individuals. And this is in conflict with the truth just mentioned. For if Quine had not existed, neither would any set that contains him. Quine's singleton, for example, could not have existed if Quine had not. For from the actualist point of view, if Quine had not existed, there would have been no such thing as Quine at all, in which case there would have been nothing for Quine's singleton to contain; so if Quine had not existed, Quine's singleton, had it existed, would have been empty. But surely the set whose only member is Quine could not have existed but been empty; in those worlds where Quine does not exist, neither does his singleton. And of course the same holds for sets that contain Quine together with other objects. The set S of philosophers, for example—the set whose members are all the philosophers there are—would not have existed if Quine had not. Of course, if Quine had not existed, there would have been a set containing all the philosophers and nothing else; but S, the set that does in *fact* contain just the philosophers, would not have existed.

And here we come upon a crucial difference between sets and properties. No distinct sets have the same members; and no set could have lacked any member it has or had any it lacks. But a pair of distinct properties—*being cordate* and *being renate*, for example, or *being Plato's teacher* and *being the shortest Greek philosopher*—can have the same extension; and a property such as *being snubnosed* could have been exemplified by something that does not in fact exemplify it. We might put the difference this way: all sets but not all properties have their extensions essentially. If this is so, however, the actualist must not follow the Canonical Scheme in taking properties to be functions from worlds to sets of individuals. If no set containing Quine exists in any world where Quine does not, the same must be said for any set whose transitive closure contains him. So properties cannot be functions from worlds to sets of individuals; for if they were, then if Quine had not existed, neither would any of his properties; which is absurd.

As actualists, then, we must reject the canonical conception of properties; a property is not a function or indeed any set whose transitive closure contains contingent objects. We must agree with the canonical conception, however, in holding that properties are the sorts of things exemplified by objects, and exemplified by objects in possible worlds. An object x has a property P in a world W if W includes *x's having P*. Quine, for example, has the property of being a distinguished philosopher; since that is so he has that property in α, the actual world. No doubt he has it in many other worlds as well. Abstract objects as well as concrete objects have properties in worlds. The number 9 has the property of numbering the planets in α; but in some other worlds 9 lacks that property, having its complement instead. The proposition

(7) Quine is a distinguished philosopher

has the property *truth* in the actual world; in some other worlds it is false. A property P is *essential* to an object x if x has P in every world in which x exists; x has P *accidentally*, on the other hand, if it has P, but does not have it essentially. Thus Quine has the property of being a philosopher accidentally; but no doubt the property of being a person is essential to him. (7) has *truth* accidentally; but

(8) All distinguished philosophers are philosophers

has truth essentially. Indeed, a necessary proposition is just a proposition that has truth essentially; we may therefore see modality *de dicto* as a special case of modality *de re*. Some properties—truth, for example—are essential to some of the things that have them, but accidental to others. Some, like *self-identity*, are essential to all objects, and indeed *necessarily* essential to all objects; that is, the proposition

(9) Everything has self-identity essentially

is necessarily true. Others are essential to those objects that have them, but are had by only some objects; *being a number*, for example, or *being a person*.

Among the properties essential to all objects is *existence*. Some philosophers have argued that existence is not a property; these arguments, however, even when they are coherent, seem to show at most that existence is a special kind of property. And indeed it is special; like self-identity, existence is essential to each object, and necessarily so. For clearly enough, every object has existence in each world in which it exists. That is not to say, however, that every object is a *necessary being*. A necessary being is one that exists in every possible world; and only some objects—numbers, properties, pure sets, propositions, states of affairs, God—have this distinction. Many philosophers have thought there couldn't be a necessary being, that in no possible world is there a being that exists in every possible world. But from the present point of view this is a whopping error; surely there are as many necessary as contingent beings.

Among the necessary beings, furthermore, are states of affairs and hence possible worlds themselves. Now an object x exists in a world W if and only if it is not possible that W be actual and x fail to exist. It follows that every possible world exists in every possible world and hence in itself; α, for example, exists in α. This notion has engendered a certain amount of resistance, but not, so far as I can see, for anything like cogent reasons. A possible world W is a state of affairs; since it is not possible that W fail to exist, it is not possible that W be actual and W fail to exist. But that is just what it means to say that W exists in W. That α exists in α is thus, so far as I can see, totally unproblematic.

3. *Essences and the α-transform.* Among the properties essential to an object, there is one (or some) of particular significance; these are its *essences*, or individual natures, or, to use Scotus' word, its haecceities. I'll use 'essence'; it's easier. Scotus did not discover essences; they were recognized by Boethius, who put the matter thus:

> For were it permitted to fabricate a name, I would call that certain quality, singular and incommunicable to any other subsistent, by its fabricated name, so that the form of what is proposed would become clearer. For let the incommunicable property of Plato be called 'Platonity'. For we can call this quality 'Platonity' by a fabricated word, in the way in which we call the quality of man 'humanity'. Therefore, this Platonity is one man's alone, and this not just anyone's, but Plato's. For 'Plato' points out a one and definite substance, and property, that cannot come together in another.[2]

So far as I know, this is the earliest explicit recognition of individual essences; accordingly we might let "Boethianism" name the view that there are such things. On the Boethian conception, an essence of Plato is a property he has essentially; it is, furthermore, "incommunicable to any other" in that there is no possible world in which there exists something distinct from him that has it. It is, we might say, essential to him and essentially unique to him. One such property, says Boethius, is the property of being Plato, or the property of being identical with Plato. Some people have displayed a certain reluctance to recognise such properties as this, but for reasons that are at best obscure. In any event it is trivially easy to state the conditions under which an object has Platonity; an object has it, clearly enough, if and only if that object is Plato.

But this is not the only essence of Plato. To see the others we must note that Plato has *world-indexed* properties. For any property P and world W, there is the world-indexed property P-*in*-W; and an object x exemplifies P-in-W if W includes x's having P. We have already encountered one world-indexed property: truth-in-α. Truth-in-α characterizes all the propositions that are in fact true. Furthermore it characterizes them in every possible world; there are worlds in which

(7) Quine is a distinguished philosopher

[2] In *Librium de interpretatione editio secunda*, PL 64, 462d—464c. Quoted in [2], pp. 135—136.

lacks truth, but none in which it lacks truth-in-α. (7) could have been false; but even if it *had* been, α would have included the truth of (7), so that (7) would have been true-in-α. Truth-in-α is *non-contingent*; every object has it, or its complement, essentially. But the same goes for every world-indexed property; if P is a world-indexed property, then no object has P, or its complement, accidentally.

Where P is a property, let's say that the world indexed property P-in-α (call it 'P_α') is the α-transform of P; and if $\mathfrak{P}$ is a predicate expressing a property P, its α-transform $\mathfrak{P}_\alpha$ expresses P_α. And now consider any property Q that Quine alone has: *being the author of* Word and object, for example, or *being born at* P, T, where P is the place and T the time at which he was born. Q is accidental to Quine; but its α-transform Q_α is essential to him. Indeed, Q_α is one of Quine's essences. To be an essence of Quine, we recall, a property E must be essential to him and such that there is no possible world in which there exists an object distinct from him that has E. Since Q_α is world-indexed, it satisfies the first condition. But it also satisfies the second. To see this, we must observe first that the property of being identical with Quine is essential to anything that has it; i.e.,

(10) Necessarily, anything identical with Quine has *being identical with Quine* essentially.

But then it follows that anything that has the complement of *identity-with-Quine*—that is, *diversity from Quine*—has that property essentially:

(11) Necessarily, anything diverse from Quine has diversity from Quine essentially.

We must also observe that

(12) Necessarily, an essence of an object x entails each property essential to x,

where a property P entails a property Q if it is not possible that P be exemplified by an object that lacks Q. And now suppose there is a world W in which there exists an object x that is distinct from Quine but has Q_α. Then there must be an essence E that is exemplified in W and entails (11) and (12), both *being distinct from Quine and* Q_α.

Since E entails Q_α, E is exemplified in α—and exemplified by some object that is distinct from Quine and has Q. But by hypothesis there is nothing in α that is distinct from Quine and has Q; accordingly, $Q\alpha$ is an essence of Quine.

For any property P unique to Quine, therefore, $P\alpha$, its α-transform, is one of his essences. So for any definite description $(\iota x)\ Fx$ that denotes Quine, there is a description $(\iota x)\ F_\alpha x$ that *essentially* denotes him—singles him out by expressing one of his essences. Here we see an explanation of a phenomenon noted by Keith Donnellan [3]. A sentence containing a description, he says, can sometimes be used to express a proposition equivalent to that expressed by the result of supplanting the description by a proper name of what it denotes. Thus the sentence

(13) the author of *Word and object* is ingenious

can be used to express a proposition equivalent to

(14) Quine is ingenious.

The proposition expressed by (13) is true in a world W where not Quine but someone else—Gerald R. Ford, let's say—writes *Word and object* if and only if it is *Quine* who is ingenious in W; Ford's ingenuity or lack thereof in W is irrelevant. We may see this phenomenon as an implicit application of the α-transform to 'the author of *Word and object*; what (13) thus expresses can be put more explicitly as

(15) the (author of *Word and object*)$_\alpha$ is ingenious,

a proposition true in the very same worlds as (14).

Now what Donnellan noted is that sentences containing *descriptions* display this phenomenon. For any predicate $\mathfrak{P}$ however, there is its α-transform $\mathfrak{P}_\alpha$. We should therefore expect to find Donnellan's phenomenon displayed in other contexts as well—by universal sentences for example. These expectations are not disappointed. Rising to address the Alpine Club, I say

(16) every member of the Alpine Club is a splendid climber!

Here, but for an untoward bit of prolixity, I might as well have gone through the membership roll, uttering a long conjunctive sentence of the form

(17) N_1 is a splendid climber & N_2 is a splendid climber & ... & N_n is a splendid climber

where for each member of the Club there is a conjunct attaching 'is a splendid climber' to his name. If $M_1 \ldots M_n$ are the members of the Club, the proposition expressed by (16) is true, in a given world W, only if each of $M_1 \ldots M_n$ is a splendid climber in W; the fact, if it is a fact, that in W the Club contains some non-climbers, or some unsplendid ones, is irrelevant. But then (16) can be put more explicitly as

(18) every (member of the Alpine Club)$_\alpha$ is a splendid climber

We may state the point a bit differently. Suppose 'S' is a name of the set of members of the Alpine Club; then (16), (17) and (18) express a proposition equivalent to

(19) every member of S is a splendid climber.

If we use (16) without implicitly applying the α-transform, of course, what we assert is not equivalent to (19); for what we then assert is true in a world W only if *in* W the Alpine Club contains none but splendid climbers.[3]

4. *Domains and propositions.* But now back to our main concern. As actualists we reject the canonical conception of properties while agreeing that objects have properties in worlds and that some of their properties are essential to them; and among the properties essential to an object we have noted, in particular, its essences. But what about domains? On the Canonical Conception, each possible world has its domain: the set of objects that exist in it. Here I have two *caveats.* First, what are domains *for*? For quantifiers to range over, naturally enough. But now we must be careful. On the usual domain-and-variables account, quantification is understood as follows. Consider a universally quantified sentence such as

[3] The α-transform can also help us fathom the behavior of proper names; in particular it can help us bridge the gap between a broadly Fregean view and the anti-Fregean claims of Donnellan, Kaplan, Kripke and others. See [8].

(20) All spotted dogs are friendly

or

(20) (x) (if x is a spotted dog, then x is friendly).

Here the quantifier is said to range over a set D of objects; and what (20) says is true if and only if every spotted dog in D is also friendly. But this seems fair enough; why must we be careful? Because it suggests that (20) expresses a proposition equivalent if not identical to

(21) every member of D is friendly, if a spotted dog

where D is the domain of the quantifier in (20). And this suggestion is clearly false. For consider a possible world where D and its members exist, the latter being, if spotted dogs, then friendly, but where there are other spotted dogs—dogs not in D—of a nasty and churlish disposition. What (21) expresses is true in that world; what (20) expresses, however, is flatly false therein. (20) and (21) are materially but not logically equivalent—both true or both false, but not true in the same worlds. We may say, if we wish, that in a sentence of the form '$(x)Fx$' the quantifier has a domain D; but propositions expressed by such a sentence will not in general be equivalent to the claim that every member of D has F.

And now for the second, and, in the present context, more relevant *caveat*. On the Canonical scheme, each world W has a domain: the set of objects that exist in W. And though it is seldom stated, it is always taken for granted that a possible world W with domain $\psi(W)$ has *essentially* the property of having $\psi(W)$ as its domain. Having $\psi(\alpha)$ as domain is essential to α; had another world β been actual, other individuals might have existed, but $\psi(\alpha)$ would have been the domain of α. From an actualist point of view, however, this pair of claims, i.e.,

(22) for any world W there is a set $\psi(W)$ that contains just those objects that exist in W,

and

(23) if D is the domain of W, then W has essentially the property of having D as its domain

leads to trouble. For a set, as we have already seen, can exist only in those worlds where all of its members exist. Hence $\psi(\alpha)$ would not have existed if any of its members had not. $\psi(\alpha)$, therefore, would not have existed had Socrates, let's say, failed to exist. But if, as (23) affirms, α has essentially the property of being such that $\psi(\alpha)$ is its domain, then α can exist only if $\psi(\alpha)$ does. Hence if Socrates had not existed, the same would have held for $\psi(\alpha)$ and α itself. If we accept both (22) and (23), we are burdened with the alarming consequence that possible worlds are not necessary beings; even the most insignificant pebble on the beach has the distinction of being such that if it had failed to exist, there would have been no such thing as α (or any other world whose domain includes that pebble) at all.

This difficulty induces another with respect to the Canonical Conception of propositions as set theoretical entities—sets of possible worlds, let's say. That conception must be rejected in any event; for it entails that there are no distinct but logically equivalent propositions. But clearly this is false.

(24) All bachelors are unmarried

and

(25) $\int_0^3 x^2 dx > 7$

are equivalent. There are those, however, who believe the first without believing or even grasping the second. The first, therefore, has a property not had by the second and is, accordingly, distinct from it. But the principal difficulty with the Canonical Conception is due to the deplorable fragility of sets and domains—their deplorable liability to nonexistence in the worlds where some of their members do not exist. For consider any true proposition p; on the Canonical Conception p will be a set of worlds containing α. But now suppose some object—the Taj Mahal, let's say—had not existed; then neither would $\psi(\alpha)$, α, or p. So if the Taj Mahal had not existed, the same would have held for the truths that $7+5=12$ and that Socrates was wise; and this is absurd. On the Canonical Conception, only necessarily false propositions together with such items as

(26) there are no contingent beings

turn out to be necessary beings. This is a distinction, surely, that they do not deserve.

How, then, shall we as actualists think of the domains of possible worlds? We may, if we wish, concur with the Canonical Conception that for each world W there is indeed the set $\psi(W)$ that contains just those objects that exist in W. On the actualist view, however, domains lose much of their significance; and they also display some anomalous properties. First of all, domains, as we have seen, are typically contingent beings. If Socrates had not existed, no set that includes him would have, so that $\psi(\alpha)$ would not have existed. Possible worlds, however, are necessary beings; hence worlds do not in general have their domains essentially. If Socrates had not existed, there would have been a set distinct from $\psi(\alpha)$ that would have been the domain of α; and if *no* contingent beings had existed, the domain of α would have contained only necessary beings. Secondly, the domain of any possible world W, from the actualist perspective, is a subset of $\psi(\alpha)$. Since there are no objects distinct from those that exists in α, $\psi(W)$ cannot contain an object distinct from each that exists in α. Of course the actualist will happily concede that there *could have been* an object distinct from any that exists in α. Hence there is a possible world W in which there exists an object distinct from any that actually exists. The actualist must hold, therefore, that $\psi(W)$ is a subset of $\psi(\alpha)$—despite the fact that W includes the existence of an object that does not exist in α. How can this be managed? How can the actualist understand

(27) there could have been an object distinct from each object that actually exists

if he holds that $\psi(W)$, for any W, is a subset of $\psi(\alpha)$?

5. *Essences and truth conditions.* Easily enough; he must appeal to essences. Socrates is a contingent being; his essence, however, is not. Properties, like propositions and possible worlds, are necessary beings. If Socrates had not existed, his essence would have been unexemplified, but not non-existent. In worlds where Socrates exists, Socrateity is his essence; *exemplifying Socrateity* is essential to him. Socrateity, however, does not have essentially the property of being exemplified by Socrates; it is not exemplified by him in worlds where he does not exist. In those worlds, of course, it is not exemplified at

all; so *being exemplified by Socrates if at all* is essential to Socrateity, while *being exemplified by Socrates* is accidental to it.

Associated with each possible world W, furthermore, is the set $\psi_E(W)$, the set of essences exemplified in W. $\psi_E(W)$ is the *essential* domain of W; and U_E, the union of $\psi_E(W)$ for all worlds W is the set of essences. Essential domains have virtues where domains have vices. Properties exist in every world; so, therefore, do sets of them; and hence essential domains are necessary beings. Furthermore, if $\psi_E(W)$ is the essential domain of a world W, then W has essentially the property of having $\psi_E(W)$ as its essential domain. And just as properties of other sorts are sometimes unexemplified, so there may be unexemplified essences. If Socrates had not existed, then Socrateity would have been an unexemplified essence. Very likely there are in fact some unexemplified essences; probably there is a world W whose essential domain $\psi_E(W)$ contains an essence that is not in fact exemplified. U_E, therefore, no doubt contains some unexemplified essences.

We are now prepared to deal with (27). Before we do so, however, let us see how some simpler types of propositions are to be understood from the actualist perspective. Consider first

(1) $(\exists x)$ x is a purple cow.

(1) is true if and only if some member of U_E is coexemplified with the property of being a purple cow; and (1) is true in a world W if $\psi_E(W)$ contains an essence that is coexemplified with that property in W.

(2) Possibly $(\exists x)$ x is a purple cow

is true if there is a world in which (1) is true—if, that is, there is an essence that in some world is coexemplified with *being a purple cow*. (2) is therefore non-contingent—either necessarily true or necessarily false.

(3) $(\exists x)$ possibly x is a purple cow,

on the other hand, is true if some member of U_E is coexemplified with the property of possibly being a purple cow. So (3) is true if some exemplified essence is coexemplified in some possible world with the property *being a purple cow*. More generally, (3) is true in a possible world W if some member of $\psi_E(W)$ is coexemplified in some world W^* with *being a purple cow*. (3) entails (2); but if, as seems likely, it is possible that there be purple cows but also possible that there be no things that could have been purple cows, then (2) does not entail (3).

When we turn to singular propositions, it is evident that one like

(28) Ford is ingenuous

is true in a world W if and only if an essence of Ford is coexemplified with ingenuousness in W.

But what about

(29) Ford is not ingenuous?

The sentence (29) is in fact ambiguous, expressing two quite different propositions. On the one hand it expresses a proposition predicating lack of ingenuousness of Ford, a proposition true in just those worlds where an essence of Ford is coexemplified with lack of ingenuousness. This proposition could be put more explicitly as

(29)* Ford is disingenuous;

i.e., Ford has the complement of ingenuousness. But (29) also expresses the denial of (28):

(29**) it is not the case that Ford is ingenuous.

(28) is clearly false in worlds where Ford does not exist; (29**), therefore, is true in those worlds. Indeed, a crucial difference between (29*) and (29**) is that the former but not the latter entails that Ford exists; (29**), unlike (29*), is true in worlds where Ford does not exist.

We may see the distinction between (29*) and (29**) as a *de re—de dicto* difference. (29*) predicates a property of Ford: disingenuousness. (29**), on the other hand, predicates falsehood of (28) but nothing of Ford. (29*) is true in those worlds where an essence of Ford is coexemplified with disingenuousness. Since there neither are nor could have been non-existent objects, there neither are nor could have been non-existent exemplifications of disingenuousness. (29*), therefore, entails that Ford exists. (29**), however, does not. It is true where (28) is false, and true in those worlds in which Ford neither exists nor has any properties.

We may see the ambivalence of the sentence (29) as due to scope ambiguity. In (29**) the sign for negation applies to a sentence and contains the name 'Ford' within its scope. In (29*), however, the sign for negation applies, not to a sentence, but to a predicate, yielding another predicate; and 'Ford' is not within its scope. Where 'Ford' has widest scope, as in (29*), the resulting sentence expresses a proposition that predicates a property of Ford and entails his existence; where the name has less than widest scope the proposition expressed may fail to predicate a property of Ford and may be true in worlds where he does not exist. This interplay between *de re—de dicto* distinctions and scope ambiguity is to be seen elsewhere. A sentence like

(30) if Socrates is wise, someone is wise

is ambiguous in the same way as (29). It can be read as predicating a property of Socrates: the property of being such that if he is wise, then someone is. What it expresses, so read, is put more explicitly as

(30*) Socrates is such that if he is wise, then someone is wise,

a proposition true in just those worlds where Socrates exists. But (30) can also express a proposition that predicates a relation of the propositions *Socrates is wise* and *someone is wise*. Since these propositions stand in that relation in every possible world, this proposition is necessarily true. Unlike (30*), therefore, it is true in worlds where Socrates does not exist. Similar for

(31) If anything is identical with Socrates, then something is a person.

If we give 'Socrates' widest scope in (31), then what it expresses is a contingent proposition that predicates a property of Socrates and is true only in those worlds where he exists. If we give it narrow scope, however, (31) expresses a necessary proposition—provided, of course, that *being a person* is essential to Socrates.

What about singular existential propositions?

(32) Ford exists

is true in just those worlds where an essence of Ford is coexemplified with existence—the worlds where Ford exists.

(33) Ford does not exist,

however, is ambiguous in the very same way as (29); it may express either

(33*) Ford has nonexistence (the complement of existence)
or
(33**) it is not the case that Ford exists.

(33**) is the negation of (32) and is true in just those worlds where (32) is false. (33*), however, is true in just those worlds where an essence of Ford is coexemplified with nonexistence. As actualists we insist that there neither are nor could have been things that don't exist; accordingly there is no world in which an essence is coexemplified with nonexistence; so (33*) is a necessary falsehood.

We may now return to

(27) there could have been an object distinct from each object that actually exists.

On the Canonical Conception, (27) is true only if there is a member x of U such that x does not exist in fact but does exist in some possible world distinct from α; (27), therefore, is true, on that conception, if and only if there are some things that don't exist but could have. On the actualist conception, however, there are no things that don't exist. How then shall we understand (27)? Easily enough; (27) is true if and only if there is a world where

(34) there is an object that does not exist in α

is true. But (34) is true in a world W if and only if there is an essence that is exemplified in W but not in α. (27) is true, therefore, if and only if there is at least one essence that is exemplified in some world but not exemplified in fact—if and only if, that is, there is an unexemplified essence. Hence (27) is very likely true. As actualists, therefore, we may state the matter thus:

(35) although there could have been some things that don't *in fact* exist, there are no things that don't exist but could have.

These, then, are the essentials of the actualist conception of possible worlds. It has the virtues but not the vices of the Canonical Conception; we may thus achieve the insights provided by the idea of possible worlds without supposing that there are or could have been things that don't exist.[8]

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[8] In "An actualist semantics for modal logic", Thomas Jager has developed and axiomatized a semantics for quantified modal logic that presupposes neither that things have properties in worlds in which they don't exist, nor that there are or could have been objects that do not exist. In the intended applied semantics, the domain of a model is taken to be a set of essences; and a proposition expressed by a sentence of the form $(\exists x)Fx$ is true in a world if and only if some essence is coexemplified, in that world, with the property expressed by *F*. Copies may be obtained from Professor Thomas Jager, Department of Mathematics, Calvin College, Grand Rapids, MI 49506, U.S.A.