Millikan, Realism, and Sameness

The subtitle of Millikan’s ground-breaking *Language, Thought, and Other Biological Categories* (1984) is *New Foundations for Realism*. Does Millikan’s work—whether in that book or afterwards—really provide such foundations? I shall argue here that the answer is “not quite—but very nearly”. Realism about objects, I shall argue, requires realism about two forms of sameness. The first is sameness in natural kind—the sort of sameness that can bind numerically distinct objects together. The second is numerical sameness across time—the sort of sameness embodied in an object’s persisting. Millikan does give a realist account of kind-sameness, I shall argue. Indeed she gives the only extant account that truly deserves to be called “realist”. But her account of an object’s persisting, I shall argue, does not stably differ from an anti-realist account. That is important because realism about persistence, as I shall be saying, is the key to realism about objects. Realism about the other sameness, about kind-sameness, supports realism about objects only if one is willing to hold that the conditions on kind-membership double as persistence conditions for the members of the kind—and this Millikan is unwilling to hold. But she could and should hold exactly that, I shall argue. Robust and powerful foundations for realism are lurking just beneath the surface of Millikan’s work.

To bring out what is distinctive about Millikan’s view on kind-sameness, I want first to set forth a very widely accepted view with which Millikan’s view sharply contrasts. This view almost surely has the status of “the received view”, though I will not attempt to substantiate that claim here. It is not in the end
a realist view about kind-sameness—even though it does incorporate some realist-sounding claims—and this is a claim that I will try to substantiate here. But for the first sections of this paper, I will leave largely in the background the question whether this widely accepted view is a realist one. The way in which it falls short of true realism becomes far clearer once one has seen the alternative that Millikan puts forth.

On this widespread view—I shall call it “conceptualism”, using the label offered by one of its proponents—kind-membership is a language-centered affair. What it is for an object to belong to a natural kind is for it to satisfy one of the sortals that we take as picking out a natural kind (Thomasson 2007a, p. 56, p. 157). What it is for a portion of matter to belong to a particular natural kind of matter is for it to satisfy a mass-noun that we take as designating a natural kind of matter (Thomasson 2007a, p. 41). The satisfaction-conditions for such a sortal or matter-name are fixed by a description that we associate with the sortal or matter-name (Thomasson 2007a, pp. 39-40).

What is this associated description like? According to some conceptualists, the associated description for at least some sortals spotlights a list of qualitative features, of properties. This might be so, for example, with “marriage license” or “jokes”—or with non-count nouns such as “money” (cf. Putnam 1975, pp. 159-60). The descriptions associated with many other sortals, according to all conceptualists, incorporate indexical elements, and in this way provide a “blank check” for the world to fill in. These descriptions, in other words, point us to certain standard examples of the kind in question, and say that the members of the kind are all those objects (or samples of stuff) that are similar in certain specified respects to the standard examples (see Fumerton 1989). Thus the description that fixes the satisfaction-conditions for “water”—to pick a familiar example—might be “whatever is the same in respect of molecular structure as these particular samples of stuff”, in other words whatever bears to the indexed samples Putnam’s relation “sameL” (Putnam 1975, p. 141). Perhaps the description that fixes the satisfaction-conditions for “chair” is “whatever artifacts are the same, in respect of the human function that they serve, as these particular objects”. In all such cases the description leaves unspecified just which the qualitative features are, in virtue of which other members (or samples) of the kind bear the specified
relation of resemblance to the indexed examples. That is left as a blank check for the world to fill in. Determining how the world fills in the blank check may require hard empirical work, as in the case of “water”; in other cases it may require relatively simple reflections on how different designs can meet the demands posed by human anatomy, as in the case of “chair”.

In any case, ostension alone cannot fix satisfaction-condition for the sortals and matter-names that end up referring to natural kinds. That is the lesson that conceptualists draw from “the quâ problem” (Devitt and Sterelny 1999, pp. 80-91; Papineau 1979, pp. 158-68). Suppose that, in a baptismal utterance, I point to some teak chairs and say “by ‘teeks’ I shall mean whatever is like these”, not specifying which sort of likeness is crucial. Does “teeks” refer to a kind of wood; to illegally imported goods; to chairs, or perhaps teak chairs; or to furniture? It has no determinate reference, conceptualists say, until the baptizer communicates which sort of features define the kind in question (Thomasson 2007b, p. 55).

The consequence of this view is that we have interesting a priori knowledge about the properties that characterize the members of any natural kind (Thomasson 2007a, Ch. 3; Sidelle 1989, Ch’s 2 and 3). Where the associated description consists wholly of a list of qualitative features, we will know a priori that members of the kind in question all have just those features. Where the associated description issues a “blank check”, we will know a priori that members of the kind are alike with respect to certain sorts of properties—we have “template knowledge”, as one might put it, about that kind. This a priori knowledge will moreover be knowledge about properties that, in any possible world, the members of the kind in question possess. We will know a priori that necessarily, if $x$ is a member of the kind in question, it possesses just these properties, or some one property of just this sort, of just that sort, etc..

Millikan’s view differs from the conceptualist view in respect of both metaphysics and semantics. Metaphysics: for Millikan, what it is for an array of objects to belong to a common natural kind—and what it is for some samples of matter to do so—is not a function of the satisfaction-conditions for terms in our language. It is a wholly mind-independent affair. It is for these objects (or samples) to possess in common the properties in a certain cluster, and to do so because of the operation of a common causal factor (Millikan 2000, Ch. 2; Millikan 2005, Ch. 6).

Semantics: what it is for a sortal or matter-name to
have the satisfaction conditions that it does has nothing to do with the description that we associate with it. Indeed it could not have anything to do with the description that we associate with that sortal or matter-name. For it follows, from Millikan’s on the metaphysics of kind-membership—together with her naturalist picture of language-development—that, in general, there is no such thing as the description that we associate with a given sortal or matter-name. Different speakers will typically use different descriptions to guide their applications of a given sortal or matter-name (1990, pp. 7-8, p. 72; 1993, 92-94). They learn of these descriptions empirically, not a priori; and typically, the descriptions they use will hold true of the kind in question only often, not across all actual circumstances, and almost surely not across all possible circumstances, in all possible worlds (1990, pp. 7-8, p. 72). I shall begin by explaining how these anti-rationalist consequences follow from Millikan’s metaphysics of kind-membership. Only afterwards will I turn to set forth Millikan’s positive account of what does fix the satisfaction-conditions for our sortals and matter-names.

II

Suppose, then, that the kinds of nature obtain independently of our having names for them or thoughts about them. Then at the time that natural selection was fashioning in our hominid ancestors the capacities to think about the world’s kinds, and to name the world’s kinds, our ancestors already were surrounded by objects and samples belonging to these kinds. These objects and samples were similar to their kind-mates in respect of many properties—often enough, in respects of properties crucial to our ancestors’ survival. For this reason it would have been crucial for our ancestors to be competent, and useful for them to be skilled, at reidentifying nature’s kinds—at judging (and saying) that this object now before me is the same in kind as that object that I (or a member of my clan) earlier examined (2000, p. 5). That is because not every property of an object or a sample that it is important for an agent to take note of is immediately obvious on every occasion of observation (2000, pp. 5-6). Some such properties manifest themselves only from the right angle or in the right lighting, or only in certain circumstances or phases of
the existence of the object that has them. So it was crucial for our ancestors to be able to bring to bear information gleaned from earlier inspections of members of a given kind to their dealings with members currently encountered. Our ancestors needed to be able to reidentify nature’s kinds.

But the very fact that gave rise to this need—that not all the properties characteristic of a given natural kind are immediately apparent upon every encounter with a member of that kind—makes it likely that different individuals, within a population of our ancestors, would have learned to cue their reidentifications of a given kind to different features and marks (2000, pp. 7-8). Some might have cued their identifications to color and shape, others to taste and sound, others to tracks and behaviors. (To use one of Millikan’s examples, think of how many ways there are to tell that an object before us is a lemon: one can tell this by color and shape, by shape and texture, by smell, or by taste—1993, p. 94.) Once our ancestors managed to communicate their several reidentifications of a given kind to one another—once they had language, and sortals by which they could communicate to one another the whereabouts and properties of members of a given kind—this divergence in recipes for reidentifying a given kind would have worked out to the individuals’ mutual advantage. For language would have ensured when one member of a population identified a given kind as present again, here-and-now, all members of that population would have shared in that reidentification (cf. Elder 2004, pp. 177-81). The capacity of each to reidentify and learn about a given natural kind would have been greatly amplified by the divergence in techniques that individual members employed. Our ancestors profited from the fact that there was no such thing as the description that each associated with a given sortal. Even now, it is likely that different speakers associate different descriptions with sortals such as “lemon” or “vole” or “hickory tree”, or with a matter-name such as “water” or “gold”; that is, different speakers cue their tokenings of these terms to different sensory cues. Such divergence in techniques for kind-reidentification works out for our benefit too.

It is important to note that, if our capacities for reidentifying nature’s kinds were installed in us by natural selection, it is likely that the specific techniques by which we implement these capacities are fallible. The features I rely on, for reidentifying a particular kind of animal or fruit or tree, or a particular
kind of liquid, may in unusual circumstances characterize the members of a different kind as well. They may even be features that do not universally turn up in members of the kind that I take their presence to indicate. The reason for this is that natural selection is typically content to install into organisms capacities that work only often, not invariably. The beaver’s tail-slapping behavior is a capacity for warning other members of the lodge of impending danger, but it works only often; beavers sometimes slap their tales when no real danger is present. The human eye-blink reflex is a capacity for preventing entry into the eye of foreign matter, but it can fail to work when debris is blown towards the eyes by a strong wind, and it can also be triggered even when no foreign matter is about to enter the eye, for example by a rapid movement towards the face. Just so, one should expect that the capacity for reidentifying nature’s kinds, installed in us by natural selection, gets implemented in fallible ways (1993, pp. 88-92). Thus not only is there no such thing as the description that we associate with “vole” or with “hickory” or with “water”: it also is likely that your description or my description applies only often to voles and to hickories. Certainly there is little reason to expect that anyone’s description spotlights features that characterize voles and hickories in all possible worlds.

But this very point may seem to raise daunting challenges concerning the semantics of the sortals and matter-names by which we speak of nature’s kinds. If different individuals cue their tokenings of a given sortal to different marks, why does it not follow that that sortal is simply ambiguous? Then too, if a single individual cues his tokenings of “vole” or “hickory” or “gold” to marks that can sometimes be presented by members of a different natural kind, why does it not follow that these terms, in that individual’s idiolect, present “the disjunction problem”—that that individual’s term “vole” has as its extension voles-or-moles, or that his “gold” refers to gold-or-iron pyrites? Worse, if an individual cues his tokenings of a given sortal to marks that members of some natural kind do not universally present, why does it not follow that the extension of that person’s sortal is some subset of the natural kind?

But worries like these presuppose that what grounds the semantic values of our various sortals and matter-names is something that lies causally upstream of tokenings of those sortals and names in sentences. That is precisely what Millikan’s semantics disputes (1993, 85-94; 2000, p. 72). In order for
my tokens of the sound-parcel “lemons” (or “gold”) to be coreferential with yours, there need be no
sameness between the description of lemons that I carry in my head and the description of lemons carried
in your head, and there need be no sameness between my dispositions and your dispositions to respond to
sensory cues by tokening “lemon”. What does need to be the same is the explanation of how, when you
and I both token “lemon” in sentences expressive of our beliefs and our desires, those sentences succeed
in doing what they are supposed to do, in virtue of our common history of natural selection.

This reference to natural selection is the beginning of a long story: Millikan’s view on the
semantics of public-language sentences, and of the beliefs and desires which such sentences express, is
complex, and is the topic of other chapters in this collection. Here I will limit myself to a brief and partial
sketch. Millikan holds that beliefs and desires are like inner sentences (1984, Ch. 8; 2002, Ch. 19). I
shall sketch how the terms in these inner sentences—our *inner* terms for natural kinds and for particular
matters—acquire the semantic values that they have. It will then be fairly clear how the account extends
to the semantic values taken by public-language sortals and matter-names in the sentences that express,
communicate, and engender those beliefs and desires.

The heart of the account is the idea that natural selection has fashioned in each of us programs or
devices for producing, in our brains, the inner sentences (tokens) that are individual beliefs and desires. I
will focus, for brevity, on the device that fashions individual beliefs. Any creature capable of flexible and
varied behavior needs to have a capacity for adjusting its behavior to its actual circumstances. The
creature needs to have a system or device that will adjust the timing of its behavior, or the spatial location
and orientation of its behavior, or the velocity and vigor with which the behavior is carried out—or any of
countless other features that characterize behavior—in such a way that its behavior will interact with
environing circumstances in such a way as to yield satisfaction of its desires—and hence, in the cases
when its desires themselves are well-formed, satisfaction of its needs. The creature needs a system or
device that will construct a mental map of its circumstances (1993, pp. 77-81; cf. 2002, Ch. 14). The
proper function of any particular belief is to help govern behavior by contributing to such a map, a map
that can be enlisted in the satisfaction of whatever desires the creature happens to form. Since a given
belief can get enlisted in the implementation of all manner of desires, there will be no limit to the ways in which a given belief may get its host agent to behave. Nevertheless there will be something constant and characteristic about the way that any one belief steers its host’s behaviors. This will have to do not with how the agent acts but with why, in getting the agent to act in the way he does, the belief does what it is supposed to do. (More precisely, it will have to do with how the belief-fashioning device, by having fashioned that particular device, does what it is supposed to do.) Any individual belief is supposed to attune action to circumstances in such a way that one desire or another in the agent gets satisfied. When a belief does this—whatever the desire that may thus get implemented—it does so because the attuned action intersects causally with some one environing state of affairs. That one state of affairs is then the belief’s semantic value, its content: it is what the belief is supposed to correspond to. Semantic value, then, is after all fixed by a causal connection. But the connection is causally downstream from the belief (1993, pp. 85-92; cf. Elder 1998, §I). A given belief causes the agent to behave in some way such that its behavior will be caused to be successful (i.e., to result in desire-satisfaction) by some one state of affairs in the world.

How might natural selection have managed to create a device that can fashion indefinitely many different beliefs, beliefs that can interact to steer behavior in ways that yield satisfaction for indefinitely many different desires? It can have done so only if there is some system to the way in which this device fashions individual beliefs (1993, p. 90). For the device to have been simple enough for natural selection to find it, and powerful enough for it to do the job that (we are supposing) won the favor of natural selection, there has to have been a system to how the beliefs that it fashioned mapped environing circumstances. By far the likeliest guess, Millikan holds, is that the device was so constructed as to produce individual beliefs—individual inner sentences in the brain—that have sentence-like structure. The inner sentences whose function it is to map states of affairs involving the same element in the world—the same kind, the same sort of matter, the same individual, the same locale—must have had in common some recurring element, that therefore served as an inner name for that kind or matter or individual. The sentences whose function it is to depict different elements in the world as having the
same feature must have resembled one another in respect of a different sort of feature, a feature that therefore amounted to a recurring predicate.

Different creatures equipped with such a belief-fashioning device might well be disposed to token inner sentences featuring co-referring inner names—in particular, names for the same natural kind, or for the same particular matter—in response to different sensory cues. The names would be coreferential nevertheless, because, when those sentences functioned in the way they are supposed to—in the way that is called for by the design of the belief-fashioning device—they attune their hosts’ behaviors to states of affairs involving the same element in the world. *Public-language sentences expressive* of those beliefs would feature sortals and matter-names that are coreferential, and for largely the same reason. Sameness in reference does not depend on sameness between descriptions, nor on sameness in dispositions to token an inner term or a public-language term. It has to do rather with a sameness called for by the design of the belief-fashioning device—a sameness in mapping of the sort that led to the natural selection of that device in the first place.

In sum, Millikan’s view on sameness in natural kind differs from the conceptualist view about as sharply as any view could: kind-membership is language-independent, and we have no interesting a priori knowledge about nature’s kinds. Even so, there is one small respect in which Millikan agrees with the conceptualist view. The basic motivation for conceptualism comes from this sort of question: “how can we possibly learn empirically about lemons or leptons or voles, unless we know in the first place just what a lemon is—or what a lepton or a vole is?” The answer, conceptualists suppose, must impute to us pre-empirical knowledge of features that all lemons, and only lemons, possess (Jackson 1998; cf. Lowe forthcoming). Millikan agrees with conceptualists that this question is a valid one. She differs with conceptualists on the shape that an appropriate answer must take. For Millikan, “knowing what lemons are” is the capacity to reidentify lemons across the various states of affairs in which they figure: the capacity, that is, to treat various individual beliefs that we may form about lemons as being beliefs about *the same*. It is this capacity that enables us to draw mediated inferences about lemons—to judge, for example, that items with just *that* pungent taste can be found on trees—and it is thus this capacity that
enables our beliefs about lemons to attune our behaviors in robust and powerful ways. We owe this capacity, Millikan says, to a “template” that we associate with our inner name for lemons; with any inner name for a kind in nature, we associate a particular “template”. But this “template” is quite different from the “template knowledge” which, according to conceptualists, we wield concerning many natural kinds that are picked out by our sortals. “Template knowledge” about the items picked out by our sortal “Ks” is a matter of explicit belief, and it is a priori knowledge about the sorts of features which Ks occurring in any possible world possess. Millikan’s template is less a matter of explicit belief than of dispositions: it is a readiness to expect there to be determinate answers to certain sorts of questions and not others concerning Ks. Thus the template I associate with “lemons” is my disposition not to ask what their valence is, nor their nationality, nor their index of refraction, but rather to ask about their size and texture and taste. It is a readiness to regard certain determinables and not others as taking determinate values across the range of the natural kind in question. Crucially, it is a readiness that can be revised in the face of empirical findings (Millikan 2000, p. 30, p.83)—I can add determinables to a template, or subtract determinables. I can learn empirically that not all lemons select one determinate property under the determinable “color”—that many lemons are yellow, but that some lemons from India are orange. I can learn that one colorful belief of the alchemists’ was wrong: that gold is not the ripened form, produced through long aging in the earth, of some other metal. To use Millikan’s charming example: I can come to know what a monotreme is—and then ask questions about the real kind in nature, monotremes—just by being told that they have a characteristic body-weight when mature, and well before I hold any determinate beliefs about monotremes (Millikan 1984, pp. 153-57).

III

Millikan’s view on sameness in natural kind is robustly realist. Soon I will argue that Millikan’s view on numerical sameness across time—that is, on persistence—does not qualify as realist. But first let
me say why this would matter—why, that is, realism about persistence does seem to be required for realism about objects.

Realism about objects, if it is to merit its name, must attribute mind-independent existence to objects that are neither abeternal nor eternal. These are objects that begin to exist at a certain time, that continue to exist across certain changes—even if only such trivial changes as change in location or change in age—and that pass out of existence at a later time. I contend that in order to attribute mind-independent existence to such perishable objects, one must attribute to them mind-independent courses of existence, careers, that mind-independently begin and end where they do, and that mind-independently span such changes as the object undergoes. One can indeed imagine a version of realism that made no such claim. This version would say that each perishable object exists mind-independently, but that the beginning of its existence, the continuing of its existence across changes, and the ending of its existence are all phenomena that obtain only in virtue of our ways of thinking or talking. But such a position would seem miserably unstable. Each perishable object would enjoy mind-independent existence, but there would no mind-independent fact of the matter as to when it exists, no mind-independent span that its existence takes up. As it exists mind-independently, any such perishable object would be without temporal location—and hence would be quite disturbingly incomplete. Meinong believed that there are—in some sense of "there are"!—just such “incomplete objects” (Findlay 1963, Ch. VI). There are persons who were not born on any particular day, golden mountains that do not have any particular height or weight, ivory spheres that have no particular diameter. But it is nearly impossible not to regard such incompleteness as the mark, precisely, of a fictional object. Just so with perishable objects that, supposedly, exist mind-independently, but do not mind-independently exist somehow.

But realism about the courses of existence traced out by perishable objects is less easy to defend than is commonly realized. A large part of the reason is that it seems so very plausible that the continued existence of any such object both requires, and is ensured by, the continuous presence in that object of certain characteristic properties. (I will call this “the qualitative assumption”.) An object passes out of existence, it seems, just when it loses certain crucial properties; it will have possessed these same
properties over the course of its existence; its existence began when, at a certain location in space and time, these properties came jointly to be present. At the same time, many other properties that characterize the object, at one point or another of its existence, are properties that the object can lose, and many are properties that in fact the object does lose, replacing them with contrary properties. Realism about courses of existence therefore seems to require a mind-independent difference between properties essential to a given object, and properties that are merely accidental.

But what does this contrast exactly amount to: what is it for certain properties to be essential to a given object, while others are merely accidental? Many of the answers that actually get offered to this question appear to entail that this distinction in modal status is not after all mind-independent. Consider, for example, the position that sometimes is called “conventionalism”\(^3\). This position holds that what it is for certain properties to be essential to a particular object just is for them to be treated as crucial by our “conventions of individuation”, the conventions we follow in making judgements of the form “this is the same object still continuing to exist”, “the object that formerly existed here exists no longer”. This position says more than just that there is an extensional equivalence between the properties essential to a given object and the properties of that object that are spotlighted by our conventions for affirming persistence. The latter position is indeed compatible with the idea that there is a mind-independent difference between the modal status essential and the modal status accidental: our conventions reflect this difference, this latter position could say, and do not constitute it. But then we would still be awaiting an answer on what the distinction in modal status does consist in. “Conventionalism” properly so called is the stronger position that the properties essential to a given object are so solely in virtue of our conventions for judging persistence—that independently of our conventions, there simply is no such phenomenon as an individual object’s persisting. This view seems quite obviously to block realism about courses of existence. (For discussion of some tricky details, see Elder 2006.)

There is a more familiar and traditional answer on what it is for certain properties to be essential to a given object, while others are merely accidental. This is that the properties essential to a given object are those by virtue of which it belongs to the natural kind that it does—those properties individually
necessary, and jointly sufficient, for membership in that natural kind. But then one must ask: what underlies the fact that such-and-such properties are individually necessary, and jointly sufficient, for membership in thus-and-such natural kind? On the conceptualist account of natural kinds, the answer—the whole answer—is that these properties are embroiled in the description that we associate with the sortal (or matter-name) by which we refer to that kind. Perhaps our description lists the properties by name. Perhaps it merely indicates which sorts of properties are crucial for kind-membership, and signs a blank check for empirical research to fill in with particular property-names. But even in the latter case, it is we who sign the check. It is we who determine which sorts of properties are crucial to membership in the kind in question. That certain properties end up as membership conditions for a given natural kind is up to us. And then if what it is for a property to be essential to a given object is for it to figure in the membership-conditions for the kind to which that object belongs, essential status is likewise up to us.

But Millikan’s account of natural kinds, we have seen, is robustly realist. Can we couple it with the traditional idea that the properties essential to an individual object are those by virtue of which it belongs to the particular natural kind that it does belong to, and end up with a realist account of the difference between properties essential to that object and properties that are merely accidental? To put it differently: can we hold that the membership conditions for Millikan-kinds double as persistence conditions for the members of those kinds, and so end up with a realist account of the persistence conditions that characterize those members—and thereby with realism about courses of existence?

Surprisingly, the answer appears to be No. Clearly no one object can be characterized by divergent courses of existence. But it can well happen, Millikan holds, that one object belongs to two or more natural kinds (2000, p. 30; 1984, p. 293). For on Millikan’s view all that it takes, for a given class of objects to compose a natural kind, is that they are characterized by a recurrent package of properties, and are so because of the operation of a recurrent causal ground. In this sense, human beings arguably compose a natural kind. But then so do human adolescents and (human) diabetes-sufferers. That is because human adolescents share a common (transient) form of brain organization, and as a result are non-accidentally characterized by a common propensity to underestimate risks in behavior; they share
hormonal disturbances, and as a result non-accidentally have a propensity for acne. Diabetes sufferers non-accidentally share a pattern of elevated blood sugar, and a host of attendant health risks. One and the same entity, then, can belong to three different natural kinds.

Indeed Millikan’s view appears to saddle us with all the cases of “coinciding objects” that appear in the literature on material constitution. Suppose that a particular ice cube is composed wholly of H\(_2\)O. Then it is some H\(_2\)O; it belongs to the chemical kind \(H_2O\). But ice, \textit{frozen} \(H_2O\), will be for Millikan a natural kind in its own right: frozen H\(_2\)O is in all portions non-accidentally characterized by a certain texture, a certain specific weight, etc. Or suppose that a certain statue is composed wholly of gold. Then that statue is some gold, a portion of gold. But what if \textit{statues} too compose a Millikan-kind? Then if it is the case that membership conditions for Millikan-kinds double as persistence conditions for the members of those kinds, our statue will have both the persistence conditions for a statue and the persistence conditions for some gold. The ice cube and the diabetic adolescent will likewise be characterized by discrepant persistence conditions.

Here then is the reason why Millikan’s views do not unambiguously provide “new foundations for realism”. Realism about objects requires realism about courses of existence, and hence realism about persistence-conditions; yet on Millikan’s views about natural kinds, it can happen that a given object belongs to more than one natural kind. And so what grounds an object’s persistence conditions—what grounds the status, \textit{as} essential, of the properties essential to that object—apparently cannot be its kind-membership.

At first blush, there seem to be four ways in which we might amend Millikan’s views so as to render them consistent with realism about persistence. (1) We might deny that some of the natural kinds that Millikan recognizes really are natural kinds—we might tighten the requirements for a class to qualify as a natural kind. (2) We might hold that only \textit{some} natural kinds are such that their membership-conditions double as persistence-conditions for their members. (3) We might hold that membership in a given natural kind in \textit{no} case sets up persistence conditions for the members of that kind. (4) We might hold that one and the same object can belong to different natural kinds, and \textit{can} in a sense have divergent
persistence-conditions. This seems impossible because it seems to entail that divergent actual spans of persistence may hold true of a single object. But no such entailment holds, says this position. For the only real objects that there are do not persist at all: they are momentary object-stages. A sentence saying that such an object persists across a certain span can be true or false, and it is in this sense that such an object can be said to have persistence conditions. The truth-maker for any such sentence will be relations that hold among (suitably-propertied) momentary object-stages. The particular relations that matter, for the truth of a particular claim of persistence, will depend upon the conversational context—upon which sortal is being used to pick out the momentary object in question, in other words which kind it is, among those to which that object does belong, that is conversationally salient. Different contexts can make different such kinds salient, and it is in this sense that different persistence conditions can attach to that single object.

Position 1 is the position that I myself favor. I will discuss it last, and briefly. Position 2 can fairly quickly be dismissed as incompatible with realism about persistence, and I will discuss it first. Positions 3 and 4 have adherents in the contemporary literature. Position 3 is treated as a serious option in Rea 2002. Position 4 will quickly be recognized as the “stage theory” advocated by Ted Sider and Katherine Hawley; interestingly, it is very close to the position that Millikan attributes to the “devil’s advocate” in Chapter 17 of Millikan 1984, a position that Millikan herself takes quite seriously. I will argue that Position 3 raises gratuitous and severe worries, and should be rejected. Position 4, I will argue, fairly clearly is incompatible with realism about persistence, since it entails that one and the same real entity can truly be said to persist over different spans of existence, relative to different conversational contexts. But the amendment of that position that Millikan offers in Chapter 17 does not help. Position 1 will emerge as the only real option.
Might one hold—as Position 2 does—that the membership conditions for some natural kinds double as persistence conditions for the members of those kinds, while other natural kinds have membership conditions that do not amount to persistence conditions for their members? The suggestion has a certain appeal. Perhaps Position 2 would enable us to claim that a human adolescent could cease to belong to the kind adolescent without ceasing to exist, while also claiming that once that same human adolescent ceases to belong to the kind human being, he really does exist no longer. But there is a serious problem with Position 2. If it has traditionally seemed plausible that an object could not lose the properties by virtue of which it belongs to its natural kind without ceasing to exist, that is not because it has seemed plausible that there is a mere extensional equivalence between the properties that are membership conditions and the properties that are the object’s persistence conditions. Rather it has seemed plausible that an object must retain certain of its properties to go on existing just on account of the fact that it needs those properties to belong to its natural kind. To put it differently, it has seemed plausible that, for any object in nature, membership in the natural kind to which it belongs is a life-and-death matter. Position 2 needs to say that the properties required for membership in certain natural kinds (but not others) are, additionally, existence-requirements for the members of those kinds—but it cannot say that they are existence-requirements just in virtue of being required for those objects to belong to a natural kind that they do belong to. For in that case, whenever certain properties are required for any object to belong to a natural kind that it does belong to, those same properties would have to amount to persistence conditions for that object. No, Position 2 needs to say that something more must be added, to the mere fact that certain properties are required for an object to belong to a given natural kind, for those properties to qualify, additionally, as persistence conditions for the object. Certain natural kinds (and not others) have somehow to be dignified as “career-defining”—as being such that membership in them is a life-and-death matter. What extra factor could confer this dignity—could make membership conditions amount also to persistence conditions? The only plausible answers would depict this extra factor as being
supplied by us. It would have to be our practices or conventions that render membership in certain natural kinds, and not others, career-defining. But then the courses of existence that do obtain in nature—the careers, in other words—would not be mind-independent.

Position 3 offers a radically different response to the problem that Millikan’s position appears to face. Perhaps one and the same object can belong to two (or more) natural kinds, without inheriting incompatible persistence-conditions, precisely because membership in a particular natural kind never sets up persistence conditions for the objects that belong to that kind. Perhaps, in other words, membership in a natural kind is never a life-and-death matter for the members. Perhaps this fact structures the semantic content of sentences that assign particular objects to particular natural kinds: perhaps when we say of an object that it “is a dog” or “is an electron”, or that is “is some water”, we are using a sortal or matter-name in only what Rea calls “a classificatory sense”, and are really only claiming that some entity now qualifies as a dog or an electron or as some water, while remaining uncommitted as to the persistence conditions for that entity (Rea 2000, §II).

But Position 3 suffers from two problems, a lesser and a greater. The lesser is that it appears to reject what above I called “the qualitative assumption”. If membership in a particular natural kind never amounts to a life-and-death matter for the objects that belong to the kind, it follows—barring special extra premises—that any object can depart from any natural kind to which it does belong, while still continuing to exist. What now qualifies as “a dog” can cease to be a dog at all, while still existing; what qualifies as “some water” or “some gold” can cease to be water or gold, but still be. The continued existence of such an entity seems not to require that it retain any particular properties. That violates the common sense idea that continued existence, for a perishable entity, does require retention of at least certain properties. Even so, the position is not without philosophical precedent. Aristotle at one point worries that he is committed to a sort of matter that can come to have, and can later lose, the properties characteristic of water or earth: a parcel of this sort of matter would be a “this”, but not a “this such” (Metaphysics Z, 1029a3-36). Commentators on Aristotle call this sort of matter “prime matter”. It is matter to which no properties are essential. Position 3 invites us to entertain the thought that wherever we discern an object (or portion of
matter) that belongs to a particular natural kind, we really are looking at a parcel of prime matter that currently is qualified, accidentally, by the properties characteristic of that natural kind (Rea 2002, p. 104—cf. pp. 132, 134, 159-60).

The greater problem is that as soon as we do entertain the thought that nature is really populated by parcels of prime matter, we are required to envision massive, widespread coincidence, for which their can be no explanation. Let me approach this point by speaking metaphorically. If nature is populated only by parcels of prime matter, it can address, to the entities that populate it, only hypothetical imperatives. It can say only, “parcels of matter!: to the extent that you elect to belong to one natural kind or another, you must display the properties characteristic of that kind, and you must respond to outside influences in the ways characteristic of that kind; in certain circumstances, you must depart from that kind altogether. If you elect to belong to the kind *dog*, you must appear furry and four-legged; you must respond to being kicked by yelping; if you should be fried by a bolt of lightning, you must depart from the kind *dog* altogether. If you elect to be *some water*, you must appear clear and potable; you must boil if heated to 212ºF or higher; and if subjected to hydrolysis, you must depart altogether from the kind *water*. But you are free at any time to rescind your membership in the kind to which you have elected to belong: it is not as if you must, on pain of death, continue to belong to your current natural kind. For this reason, if you currently belong to the kind *dog*, you are free suddenly to present cat-like features; or to respond to being kicked by emitting the hollow ringing of a gong, or by exploding; and you are free to respond to being struck by lightning by forming a pool of molten lava.”

The problem, of course, is that nature appears to be populated by entities that take their membership in a particular natural kind quite seriously. Nature’s objects and portions of matter appear to treat the duties attendant upon their kind-membership—duties both as to the properties they present and the behavior they perform—as unconditionally binding. They do not respond to impinging influences in ways uncharacteristic of their kind, do not suddenly display properties that lie outside the nature of their kind, and do not appear to be destroyed when exposed to events that members of their kind characteristically survive. If nature *really* is populated by parcels of prime matter, it is an amazing
coincidence that each such parcel behaves in the way one would expect of an entity permanently wedded to just one natural kind. To drop the metaphor: the hypothesis that nature is populated by parcels of prime matter is empirically indefensible. There is not a scrap of evidence for supposing it true, and supposing it true requires us to posit a standing and inexplicable coincidence.

Now for Position 4, the position that one and the same object *can* have divergent persistence conditions. What keeps this position from collapsing immediately into absurdity is the contention that no real object ever actually persists—that strictly, the objects of nature are momentary object-stages. Sider and Hawley present this contention in a semantic formulation. Phrases employing sortals such as “this banana”, “a dog”, “that lemon” do typically pick out real objects, Sider and Hawley say, but objects that are extremely short-lived: when we speak of “a dog”, for example, we are saying how matters stand with some momentary dog-stage (Hawley 2001, pp. 48-52; Sider 2001, p. 60, pp. 188-208). For *every* claim that we make about how long familiar objects persist, and what happens to them as they persist, the truth-makers are relations that obtain among momentary stages—those relations, that is, along with the facts as to what each of the related stages is like, in and of itself. Millikan goes half-way towards agreeing with the stage theorists: she rejects endurantism, the view that when it is true that an object lasts across a span of time, one and the same object is present, whole and entire, at each moment within the span. Her view does feature an element largely absent from stage theory, an element to which I will shortly return: “*something*, we still will want to say, persists *through* time when an object persists”, and this “something” is what Millikan calls a “subessence” (1984, p. 290). But no relation of identity links the object that exists at \( t_1 \) with the object that exists at \( t_3 \). If, that is, we set aside the persisting “subessence”,

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\text{[i]t appears that the case against genuine identity over or through time rests...All there is is the identity of each temporal stage of a thing with that that temporal stage, the identity of the whole collection of temporal stages with that collection, and a principle of unity that collects these stages into a unified whole (1984, p. 290).}
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But what is the nature of this “principle of unity”? If we abstract for now from what Millikan says about subessences, it is much the same as the relations that, for stage theorists, bind one stage together with other stages both earlier and later. These are *temporal counterpart* relations, analogous to Lewis’s modal
counterpart relations. When we speak of “this dog”, we refer to an object-stage that cannot, in the very nature of the case, itself be present at other moments; but there will be other object-stages (specifically, other dog-stages), located at, say, $t_7$ and $t_8$, that “stand in” at those moments for the stage we pick out with “this dog”.

If endurantism is false—as both stage theory and Millikan hold—does it follow that we can truly attribute, to objects that really exist in the world, only those properties that can be instantiated in the space of a single moment? Millikan and stage theory both answer No—but they say “no” in different ways. Millikan says “no” in the way that perdurantism does; to put it differently, Millikan is a “worm theorist”. That is, she holds that we “divide up” (p. 293) the world into temporally extended entities, “space-time worms” (Millikan 2000, p. 70), by “collecting” together object-stages that are located at successive moments. Sider and Hawley avoid positing temporally extended entities and in this respect take a view different from Millikan’s. But they still answer No to our question—and indeed they end up endorsing a position that is operationally quite close to Millikan’s. They hold that we can truly attribute to real entities in the world “historical properties” (as Sider calls them)—properties such as those picked out by “once grew on a tree”, “was once a young boy”, “will one day be an old man” (Sider 1996, pp. 437-38 and 446-47; Sider 2002, pp. 193-96). We can truly attribute “lingering predicates” (as Hawley calls them, such as “is musing about Vienna” or “is traveling across the room” (Hawley 2001, pp. 53-57). The subject of such true predications is not a temporally extended worm, but instead a single momentary stage. The stage can nevertheless satisfy the predication, by virtue of relations that it bears to suitably-propertied temporal counterparts. The relations really obtain, and so the predication is true.

Now for the question on which Millikan diverges sharply from stage theory. Are there limits on which temporally-located objects really exist in the world, and on which relations obtain among the real temporally-located objects, that restrict which true applications we can make of “historical” and “lingering” predicates? For Millikan, this amounts to asking: is just any collection of successive stages, into which we might “divide up” the world, just as ontologically genuine—just as real—as any other? For the stage theorists, the same basic question must be asked in rather different terms. For Millikan, a
main way that we “collect” successive object-stages is by wielding sortals that pick out particular sorts of space-time “worms”, e.g. “tadpole” or “example of Rana catesbeiana” (cf. 1984, p. 293). For the stage theorists, our sortals do not pick out worms at all, but rather spotlight particular sorts of temporal counterpart relations obtaining between some individual object-stage and particular other object-stages, located at times both earlier and later. So for the stage theorists, our question amounts to asking: does every sortal that we wield spotlight temporal counterpart relations that really obtain, and that can render true the application of a historical or lingering predicate—or do some sortals depict temporal counterpart relations that are spurious, that do not really obtain? The “devil’s advocate” in Millikan’s discussion answers Yes: any collection of successive stages that we might divide out from the world is as real as any other. Millikan herself holds that this answer neglects the role of “subessences”, and I will return to this point momentarily. The stage theorists, when asked the same question in terms appropriate to their view, likewise answer Yes: any sortal that we might wield directs us to heed temporal-counterpart relations that are as real as those made salient by any other sortal. That is why, when we apply first one sortal and then another, to one and the same momentary object—when we say first that the entity is “an adolescent”, and then say that it is “a human being”, or when we first say that the entity is “a statue”, and then say that it is “a portion of gold”—we are in effect attributing different persistence-conditions to that one entity, and are truly attributing different persistence-conditions to it.

Stage-theory itself, I now argue, is unfriendly terrain for a realist about objects. But in fact stage-theory is a Janus-faced doctrine, and for that reason it is unfriendly terrain for different reasons. Suppose that we concentrate on the “face” of stage-theory that says that the only real objects are momentary object-stages, entities that do not persist at all. Then my most basic contention—that realism about the world’s objects requires realism about courses of persistence—falls flat. But in that case we have severe problems about which properties can truly be attributed to the real objects of the world. For it then appears to follow that no property can truly be attributed to a real object, the instantiation of which takes longer than a moment. If so, then arguably no velocity can truly be attributed to any real object. Indeed it is arguable no property involving a dispositional component can truly be attributed: no real object can
truly be said to have a melting-point or a viscosity or a color; even many of the shapes that we commonly suppose to be present in the world cannot truly be attributed to real objects. The real objects of the world will be little more than sense-data (Elder 2007a). This is an unfriendly position for anyone.

The other “face” of stage-theory insists that sentences attributing historical and lingering predicates to real objects in the world can literally be true. If we focus on this aspect, we will judge that there really are truths about how long real objects in the world have been in existence, about what has happened to them in the past, and about what will happen to them in the future; real objects can be credited with velocities, and with properties that involve dispositions. In this case we will judge that, for stage theory, there is such a phenomenon as persistence, for temporally-located objects. For that very reason, I will be free to reassert my fundamental contention: realism about objects requires realism about courses of persistence. But persistence—when we focus on this aspect of stage-theory—will be a phenomenon indexed to one conversational context or another. How long the real object that we are discussing persists—what that object’s persistence conditions are—will depend on which sortals are salient in our conversation about that object. The courses of persistence that obtain in the world will be a function of how we are at present talking. And this is the very antithesis of realism about courses of persistence.

What about Millikan’s own answer to the question of which temporally-extended “worms” really obtain in the world—in other words, about where persisting entities really are to be found? Millikan disagrees with “the devil’s advocate”. She holds that not just any collection of object-stages that we might carve out of the world is as ontologically genuine as any other. The genuine collections are those in which each successive stage is shaped and governed by a “subessence” obtaining at every previous stage. A “subessence” is a principle or nature that ensures—at least given typical circumstances—that properties present in one temporal stage will be reproduced in later temporal stages spatio-temporally continuous with that one stage. (In an analogous way, the nature of the secondary substance gold ensures that the properties presented in one spatially localized sample of gold will get presented as well in other
spatially localized samples: 1984, pp. 290-91). The only real worms, in other words, are those for which something causes recurrence of the same properties in stage after stage after stage.

Does this aspect of Millikan’s own view mean that she holds a better version of Position 4 than stage-theorists do—or at least a more realism-friendly version? No: Millikan does not endorse any version of Position 4 at all, since she holds that there are entities that persist—worms that incorporate temporal parts at successive moments, and that thus perdure. Does it mean that, setting Position 4 aside, she holds a view that can dissolve the threat posed by the idea that often, one and the same object belongs to different natural kinds? No again, unfortunately. Typically, if one and the same object were to belong to more than one natural kind, it would be characterized by divergent persistence conditions, and would have different actual courses of persistence. Just that is the case with our human adolescent. At any one moment, he is incorporated in worms of different temporal extension: at the very least, in a worm that ends when he reaches 19 years of age (or so), and in a worm that ends when he dies. Millikan’s restriction on which worms are real does not help here. Something causally ensures that many properties in the present adolescent-stage recur in subsequent stages of the adolescent, but it is also true that something ensures that many of these properties recur in stages of the adult human being who grows from the adolescent. It even is ensured that some properties in the present stage will recur in stages of the corpse that is left after the human being dies: that is why we can identify the victim of an accident by consulting the dental records of an adolescent. “Subessences” link together the stages in three different worms: one picked out by “this adolescent”, the second by “this human being”, and the third by “this mass of human tissue”. As Millikan herself says: “a temporal stage does not by itself determine any particular subessence as the subessence that must unify it with other temporal stages into one whole enduring thing over time” (1984, p. 293). Consequently, “a great deal of room is left for decision on our part as to how to divide the world into…temporally extended wholes” (p. 293). This is anti-realism about persistence.

This returns us to Position 1—the position that not all the kinds that Millikan regards as natural kinds really are natural kinds, really do set up persistence conditions for their members. The idea would
be that more is required, for a class to be a natural kind, than what Millikan indicates. Here is an articulation of Position 1 that I have offered (Elder 2007b). At first blush, it might seem that any property that belongs to the very nature of a natural kind must reflect, and be grounded in, other properties encompassed in that nature. But of course this cannot universally be true, as then we would have a vicious regress. Some properties encompassed in the nature of a natural kind must themselves ground, without being grounded by, other properties in that nature. *Having molecular structure* \(H_2O\) *plays this role in the nature of the natural kind* water: this microstructural property grounds water’s characteristic index of refraction, its specific gravity, its boiling and freezing points, etc. So long as some property grounds many other properties in the nature of a natural kind, and does so all by itself, then it is sufficiently integrated in that nature to count as itself an element of that nature, one might hold. But consider, in contrast, the supposed natural kind *ice*. *Ice*, if a natural kind, would encompass in its nature the property *having a temperature between 32ºF and 212ºF*. But that property does not grow out of other properties that would lie in ice’s nature: if it did, you could keep a chunk of ice frozen, on a hot day, merely by refraining from altering its specific density or its crystalline structure. And while it is true that *having a temperature between 32ºF and 212ºF* grounds other properties that are distinctive of ice, it is arguable that it does not do so all by itself. Rather it does so by enlisting the powers of *having molecular structure* \(H_2O\)—it triggers one way in which that microstructural property can shape other properties. For as realized in steel, *having a temperature between 32ºF and 212ºF* grounds no special properties beyond itself.

Better articulations of Position 1 may be available. It is hard to believe that no version of Position 1 can be defended. But if Position 1 can be defended, then Millikan can be a full-blown realist about courses of persistence. Just beneath the surface of Millikan’s writings there lurk powerful “new foundations for realism”. 
Footnotes

1 From here on out, it will be clear that many of my references are to works by Millikan; rather than repeat her name needlessly, I shall therefore adopt the convention of using only the year of publication, when and only when I am referring to something she wrote.

2 Fodor 1990, Ch. 3; Fodor in Loewer and Rey 1991, at pp. 293-96; Neander 1995; Millikan in Loewer and Rey 1991, at pp. 158-63.

3 The most careful presentations of the conventionalist position, in my opinion, are Sidelle 1989 (in particular, pp. 50-58), Sidelle 1998, and Thomasson 2007a (in particular, pp. 57-59). But the most influential endorsement of conventionalism is probably Hilary Putnam’s attack on ‘Self-Identifying Objects’ (Putnam 1981, Ch. 3), or on ‘ready-made objects’ (Putnam 1982). Another widely-read endorsement of conventionalism is Jubien 1993.

4 With one sort of exception: the comments we make when engaged in “diachronic counting” of bananas and dogs and other objects are not comments about individual object-stages, say both Sider and Hawley; but both treat these comments as an isolated and anomalous exception to their general thesis—Sider 1996, p. 448; Hawley 2001, pp. 63-64.

5 Except in the anomalous case of diachronic counting: see note 4.

6 If Millikan were using the terminology from David Lewis that has now become fairly standard, she would say “persisting” rather than “enduring”, for she is clearly not an “endurantist”. I hasten to add that the Latin word “sic” means only “thus”—it does not by itself say that a given author has made a mistake.
References


