
Critical Notice

HENRY LAYCOCK, *Words without Objects: Semantics, Ontology, and Logic for Non-Singularity*. Oxford: Oxford University Press 2006. xiv + 202 pages.

I

In *Words without Objects: Semantics, Ontology, and Logic for Non-Singularity*, Henry Laycock takes a serious look at the semantics for plural reference and mass reference, drawing parallels and making distinctions. His general method is to first discuss the case of plurals, and how they are best understood, and then move on to the case of mass terms.

We can improve our terminology right away by adopting his. The appropriate grammatical category is 'non-count nouns' (NCNs). In addition to standard mass terms like 'water' and 'dirt,' NCNs include 'furniture' and 'clothing,' so the appellation *mass* is not really general enough. And one nice feature of the book is its consideration of the similarities and differences among NCNs. When it comes to ontology rather than grammar, the more paradigmatic NCNs, the mass terms, are the focus.

One of Henry Laycock's principal points is that there is a contrast between plurals and mass terms in their ontological significance. Whether we speak in the singular or the plural about individual objects, we are speaking of the same objects.

- (1) Fido is barking. Crito is barking.
- (2) Fido and Crito are barking.
- (3) Fido and Crito are playing together.

Dogs, singular or plural, are the subjects of predication. Even when we have non-distributive predication (as in (3))¹ and plural quantification as in (4):

- (4) Some dogs are surrounding a fox.

plural and singular ultimately rely on the same ontology (individual dogs, in these cases). If we take the singular as basic, adding plurals will add no new things to the ontology. Here I, like Laycock, accept the conclusions of Boolos, that the semantics of plural language does not automatically require sets or mereological sums.² Also, if we take the plural as basic, the singular will add no new things to the ontology.³

What I have just said is true as long as we take my references to the *singular* strictly — as reference to predications of single individuals. Laycock wants us to recognize that the grammatical singular can mislead us if we always interpret it as involving the predication of a property to a single individual. When we use non-count nouns ('water,' 'molasses,' 'dirt,' 'furniture,' etc.), though we use the 'singular' form of the verb, we should not view that as reference to a single individual. The grammatical distinction in verbs is better seen as a distinction between the plural and the non-plural. Laycock wants to make sure that we recognize that NCN (stuff or mass) reference and predication is neither singular nor plural; we should not let the non-plural form of the verb mislead us into thinking that reference to water must always be reference to a thing. And, unlike the situation with plurals, NCN-based reference seems to require something ontologically new, once we get away from thinking of this as reference to an individual thing.

- (5) Water is seeping into my basement.
 (6) Water surrounds our boat.
 (7) I put water in my thermos
 (8) The water in my basement is ruining some bookcases.

If we don't let philosophy mislead us, then we should be able to avoid any temptation we might have to regard this talk about water as talk

1 The predicate can be true of them (Fido and Crito, in this case) without being true of each of them.

2 Boolos 1984 and 1985.

3 McKay 2006 includes discussion of such an approach.

about some individual thing. Each sentence is non-plural, but it is not thereby about some single individual.

Standard systems of logic operate on a singularist model that makes them even more misleading than ordinary grammar is; in cases involving plurals as well as cases involving mass terms, standard logic leads people to search for individuals that can serve as surrogate objects of reference. Predicates in a standard first-order language have argument places filled by individual constants or individual variables. In assigning semantic values in the traditional way, we consider an assignment of an individual to an argument place when we interpret the sentence. With plurals, we sometimes get a simple semantic reduction of the plural to a singular, so that there is a way to represent the meaning of the plural that makes this limited language work.

(9) Agnes and Baahb are sheep.

reduces to

(10) Agnes is a sheep and Baahb is a sheep.

And

(11) Some sheep are grazing.

is interpreted as

(12) 'x is grazing' is true relative to at least one assignment of a sheep to x.

Notoriously, this runs amok with non-distributive plurals like 'Agnes and Baahb look alike' and 'Some sheep are surrounding Charlie.' The proposed patterns for reduction and interpretation fail, and any representation in standard first-order logic must interpret these sentences on a different model. Standard first-order logic requires replacement of the plural reference and predication, relying instead on singular predicates applied to single objects like sets, pairs or mereological sums, to stand in for the plural predications of natural language. Much has been written in discussion of this problem for plurals.⁴ A substantial portion of Laycock's book involves discussion of the case of plurals, to help

4 See Boolos 1984, 1985, Lewis 1991, 62-71, Linnebo 2004, Oliver and Smiley 2001, Rayo 2002, Yi 1999a, 1999b, 2005, 2006, and McKay 2006, for example.

establish that the standard, singularist, first-order model needs revision, but Laycock's more distinctive goal is to tell us something about the semantics of non-count nouns, and the discussion of plurals is best viewed as preparation for that. Plurals and NCNs are alike in requiring new ideas if we are to understand their semantic role, and NCNs seem to also require some new ontology, something other than an ontology of individuals, if we are to avoid singularization.

Laycock's discussion will be of great value for those studying the semantics of mass (NCN) terms. Although I will, following usual philosophical practice, focus on problems and limitations in the rest of this discussion, that should not be taken to undercut the value I see in the careful consideration of NCN terms to be found in *Words without Objects*. In a review, it is much easier to identify problems than it is to convey the value to be found in the broader discussion that makes a less direct case for the special character of mass reference.

II Against the singularizing of NCN reference

As in the case of plurals, traditional approaches to mass reference and predication, employing a standard first-order framework, have had to find individuals that can serve as surrogate subjects of predication. One proposal (associated with Helen Cartwright, most prominently) has been to see mass predication as predication applied to individual bits or parcels of stuff.⁵ To say that water is in my basement is to say that a bit of water is in my basement. The bit of water is an individual that can satisfy the predicate ('*x* is in my basement'), and reference and predication proceed as usual. Mass reference and predication in general are reduced to (in some sense of 'reduced to') reference and predication of such bits of stuff, on proposals like this, and then our logic and its semantics need no special additions to accommodate reference to stuff.⁶

I use 'bit' here instead of Cartwright's term 'quantity,' because the word 'quantity' is commonly used in connection with measure. In the measure case, the more common ordinary language use, the answer to 'What quantity of water is in the basement?' would be something like 'Forty gallons.' In the sense we want to capture, the answer would

5 Helen Cartwright, 'Quantities,' *The Philosophical Review* 79 (1970) 25-42

6 Different versions of this proposal might range from a semantic claim about ordinary language to a claim of expressive adequacy of the individualizing approach in a first-order 'ideal' language. Laycock wishes to dissuade us from any such approach.

be something like 'That one.' Or 'The one that was in my neighbor's pool before the pool started leaking.' This is a much more peculiar use, but the one that the philosophical project needs. Confusion about this muddles some discussion of these issues. Some word like 'bit' or 'parcel' (the term Laycock frequently uses) is less loaded with an irrelevant use than is a word like 'quantity' or 'amount.'

It may be of value to go beyond what Laycock says, and clarify how reference can become the focus in considering NCNs.⁷ After all, on a standard first-order approach, even a CN is a general term, not primarily a referential term. Similarly, a NCN, like 'water,' is a general term, applying to water here and water there that instance it. One way that we might see NCNs as referential is in their role in definite descriptions ('the water') and other quantifier phrases ('some water') that are arguably referential.⁸ Perhaps bare uses (such as those in (5)-(7)) are often best understood as having implicit quantifier words, interpretable as referential expressions if any quantifier phrases are ever properly interpreted as referential; or perhaps such bare uses are best taken as simply referential on their own.

Even if we do not wish to interpret quantifier phrases (or even bare uses of NCNs) as referential expressions, there is still the question of what the subject of the fundamental NCN predication is, i.e., of what satisfies '*x* is water,' especially if we understand quantifier phrases on anything like a standard model. That is where bits or 'quantities' might play a useful role. Understanding the predication '*x* is water' will be an important part of understanding quantifier phrases, if such phrases (such as 'most water,' 'some water,' etc.) are of the form '[*Qx* such that *x* is water],' where *Q* is a quantifier word. We must either understand what values *x* can take, or provide some other analysis of quantifier phrases, or provide another analysis of (or replacement for) the basic NCN predication ('*x* is water') itself.

One can think of variables as ultimate referential terms; a clause with a free variable plays its role through the propositions that it determines when something is assigned as the referent of that variable. The attraction of bits or 'quantities' is that they can be the ultimate referents for variables in mass predications, on the model being considered here. That is a more complex relation than just saying that uses of mass term refer to these quantities. Rather, expressions involving mass terms must be evaluated by considering propositions that are about such bits or quan-

7 I thank Kathrin Koslicki for encouraging me to take this step.

8 This referential view of definite descriptions and quantifier phrases is not one I would support.

tities, on the view under consideration. (The evaluation of a quantified sentence depends on the evaluation of many such individual propositions.) But the bits of stuff seem to provide an initially plausible answer to the question of what must serve as the ultimate value of variables in the interpretation of NCN predication, and this approach requires no novel analysis of quantifier phrases or of NCN predication.

Laycock presents both direct arguments and indirect considerations against the bits-of-stuff picture. I think that those who support the bits-of-stuff picture can respond adequately to Laycock's principal direct argument for differentiating mass reference from singular reference. The less direct considerations rely primarily on the anti-reductionist discussion of plurals and on analogies between plural reference and mass reference; I find these indirect considerations ultimately more compelling.

If the case against the individualization of NCN reference (i.e., against the bits-of-stuff picture) is made, that leads us to further projects, alternative accounts of NCN-based noun phrases (should we even call it *reference?*), NCN predication ('That is water') and quantification. The complementary discussions of non-count predication and quantification are not carried out in detail in *Words without Objects*. The subtitle should perhaps be *Considerations towards a Semantics, Ontology, and Logic for Non-Singularity*, rather than the bolder project it suggests, but there is great value in getting started, even if a completed semantics and logic are not to be found here, and even if the ontology is more negative (non-singularist) than positive.

1. A direct argument and its deficiencies

Laycock puts forward a puzzle (24-8) in arguing against a reduction of mass reference to singular reference. Consider this contrast:

If I put a cat in a bag (and it stays, and no other cat is involved), then,

- (a) the cat in the bag at t_1 = the cat in the bag at t_2 (even if the cat loses weight).⁹

If I put ice in my glass and it gradually melts, then, where t_2 is a time where a little has melted,

⁹ No cats were harmed in the course of considering this example and those that follow. But much ice melted.

- (b) the ice in my drink at $t_1 \neq$ the ice in my drink at t_2 .

Nevertheless,

- (c) It is not until some later time t_3 , when it is all melted, that the ice in my drink ceases to be.

This seems to lead to a puzzle about t_2 , if we treat the ice as an individual and if 'ordinary concepts of identity-criteria and persistence-conditions' apply 'in the same straightforward manner' as they do to 'what expressions like "the cat" denote.' The facts about the ice mentioned in (b) seem to lead to:

- (d) at t_2 , $\sim\exists x$ (x is the ice added at t_1)

The facts about the ice mentioned in (c), that the ice ceases to be at t_3 , seem to lead to:

- (e) at t_2 , $\exists x$ (x is the ice added at t_1)

This is an interesting puzzle, but in this form I don't think that it should detain the partisan of bits (parcels, quantities) of matter for very long.¹⁰ For example, one could argue that the phrase 'the ice at t_1 ' denotes a bit of matter by an accidental property, that it is ice at t_1 . That bit of matter persists as the ice melts, but not all of it is ice at t_2 . Thus 'the ice at t_2 ' denotes a distinct bit of matter (a sub-bit of the t_1 bit), and so (b) is true. The bit of matter (that is ice at t_1) never ceases to be in our imagined case, but at t_3 , the last cold morsel of it ceases to be ice. At that point, the bit of matter that was ice at t_1 has all become non-ice.¹¹

Whether (d) or (e) is true depends also on how serious we are about the tense (and how we interpret the scope of the definite descriptions).

10 In their reviews, Kathrin Koslicki (2006) and Adam Sennett (2007) have also offered criticisms of this argument. A full draft of this review was developed independently of their reviews. That draft was subsequently revised in light of direct comments from them and others.

11 Another way to respond would be to take 'the ice' to refer to the ice pieces (that perhaps start as cubes). This treats 'ice' as similar to the NCNs 'furniture' and 'clothing,' with readily recognized units that can change in size. Sentence (d) would definitely be false, on this view, if all the pieces of ice still exist (even if diminished). However, this would simply require a change of example (blue water changing to brown, for example) to avoid the possibility of such an alternative response. (I thank Kris McDaniel for discussion of this possibility.)

On an ordinary philosopher's reading, (e) is true, but the bit of matter (H_2O , in this case) that was ice at t_1 is no longer entirely ice. Although (d) is false, this is true:

(d') at t_2 , $\sim\exists x$ (x is (entirely) ice at t_2 and x is the ice added at t_1).

On another, perhaps stricter, reading of tense, (d) is true and (e) is false, just as we might say that Bill Clinton **was** the US president who signed the welfare reform bill, but he no longer **is** the US president who signed the welfare reform bill. The bit of matter that was ice that included all of the ice added at t_1 is no longer (at t_2) ice that includes all of the ice added at t_1 , simply because at t_2 it is no longer all ice.

A similar puzzle will occur in count cases if we identify an individual by a non-essential property. For example, if I put a ten-pound cat in the bag at t_1 and it loses two pounds by t_2 , then at t_2 , 'the ten-pound cat in the bag' doesn't refer to anything (if no other cat in the bag has become a ten-pounder in the meantime). Did the ten-pound cat in the bag cease to exist? Getting clear about tense and implicit time indexes will resolve the problem.¹²

Even someone who is not a partisan of the idea that all talk about matter is talk about bits of matter might find a similar answer attractive. One could argue that the phrase 'the ice at t_1 ' denotes some stuff (not an individual) by an accidental property, that it is ice at t_1 . That stuff persists as the ice melts, but not all of it is ice at t_2 . Thus 'the ice at t_2 ' denotes just some of that stuff, not all of it, and so (b) is true. (Replace ' \neq ' by 'is not the same stuff as' if you are reluctant to apply the concept of identity to stuff.) The stuff (that is ice at t_1) never ceases to be (in our imagined case), but at t_3 , the last cold morsel of it ceases to be ice.

Once again, whether (d) or (e) is true depends on how serious we are about tense. On an ordinary philosopher's reading, (e) is true (replace ' \exists ' and ' x ' by 'Some stuff' and ' μ ' if you don't want to apply the ordinary existential quantifier and variable when talking about stuff), but the stuff that was ice at t_1 is no longer entirely ice. So this is also true:

(d*) at t_2 , \sim some stuff μ (μ is ice at t_2 and μ is the ice added at t_1).

On a stricter reading of tense, (d) is true and (e) is false (as above).

12 There may be a real problem here about whether, in the mass case, one could continue to think of this problem as involving essential versus accidental properties, as we address more cases. We will consider some other possible responses to versions of the puzzle where the essential-accidental distinction may seem less apt.

Either way, we recognize a dissimilarity between the cat in the bag and the ice in the glass. We refer to the same individual when we use 'the cat' at different times, but different stuff when we use 'the ice' at different times. We do not identify the ice as something with the unity and continuity that the cat has. But that is because we are identifying some stuff by an accidental property, being ice. If we put a ten-pound cat and a twelve-pound cat in the bag at t_1 , and each loses two pounds by t_2 , then the ten-pound cat in the bag at $t_1 \neq$ the ten-pound cat in the bag at t_2 . A ten-pound cat can cease to be a ten-pound cat without ceasing to be, and water that is ice can cease to be water that is ice without ceasing to be.

Such ordinary considerations seem like the right way to handle this version of the puzzle no matter what view we take of mass reference and predication. The logical treatment of mass reference, predication and quantification may require some departure from standard first-order logic. But I doubt that this argument and the puzzle that generates it make much of a case for that or show us anything about what kind of departure is needed.¹³

In other places, Laycock offers us suggestions about what constraints he thinks should be in force in developing a conception of mass reference and predication. Unfortunately, the results of his consideration of this puzzle play a role. For example:

While we may, in an informal sense of 'refer,' refer demonstratively to the ice ... as *this ice*, the ice may nevertheless, *pace* Heraclitus, be melting or forming, hence changing in amount, even in the course of uttering the phrase 'this ice.' What this is not, therefore, is reference in the fully fledged, 'object-involving' sense. (27)

Laycock's proposal for mass reference, going beyond the object-involving model, is more puzzling than enlightening when it confronts these kinds of cases. He wants 'this ice (in my drink)' to refer at t_1 to some stuff that exists through t_2 (as it melts) and up to t_3 , yet 'this ice' used at t_2 would not refer to that stuff. That is not difficult, but it does not seem to require going beyond the object-involving model, since 'this ten-pound cat' and 'the President' have those very characteristics.

Laycock might also have considered some similar plural examples to test out his account of the NCN case. For example, it does not seem that consideration of examples like these, describing a process that takes perhaps twenty minutes:

13 We will consider a slightly strengthened version of Laycock's puzzle, based on gold instead of ice, where other responses might be needed

The fans in the stadium are leaving.

The fans are emptying the stadium.

would lead to anything like the conclusion he draws about mass reference and predication. The parallel point would seem to be that since 'the fans in the stadium' has different reference at different times, then the use of it at t1 in describing a situation involving this kind of change cannot involve a reference to some persistent things (the fans in the stadium at t1, say). That doesn't seem like an attractive answer at all.

2. *Indirect considerations*

The indirect considerations against semantic singularization of NCN reference and predication make a stronger case. Laycock argues that singularization is a poor way to deal with plurals.¹⁴ Singularization seems at least as artificial in the case of mass reference and predication. And, as Laycock nicely points out, the stakes are higher there, because mass reference is not just another way of talking about individuals; mass reference requires an ontologically different category for its semantics, if Laycock is right.

Consider:

We love our new summer home in the St. Lawrence. Trees surround our house, and water surrounds our island, leaving us at home with the birds.

There are two morals to the recent of the discussion of plurals. First, we learn that not every plural reference/predication is semantically equivalent to some singular reference/predication; no single tree surrounds the house, the trees together do. Second, once we see that we are better off if we do not introduce special objects like sets (singular surrogates for plurals) as the basis for plural semantics, we can also see that plural and singular discourse are just different ways of talking about the same individuals (some trees).

When we consider water, the first of the morals applies, but the second doesn't.¹⁵ As in the case of plurals, we should not expect a successful re-

14 See also Boolos 1984, 1985, Lewis 1991, 62-71, Oliver and Smiley 2001, Rayo 2002, Yi 1999a, 1999b, 2005, and McKay 2006.

15 Here I am agreeing with Laycock and disagreeing with those who would give a 'bit' semantics for mass terms. A partisan of the bit semantics might say that the first moral does not apply but the second does. (I thank Mark Heller for some useful comments about this.)

duction to singular reference and singular predication, something that the application of traditional first-order logic would require. But when we say that water surrounds our island, or that the water surrounding our island is clear, our discourse is not singular discourse (about an individual) and is not plural discourse (about some individuals); we have no single individual or any identified individuals that we refer to when we use 'water.' We are talking about some stuff, not a thing or some things, and in that way, mass reference and predication are ontologically more significant than plural reference and predication. We seem to be in new territory ontologically, not just grammatically.

In the chapter 'In Thrall to the idea of The One,' Laycock gives us examples of plural reference and predication ('They are two in number' and 'A and B = C and D,' for example) and argues that they cannot be semantically understood as singular reference and predication. He weaves this together with some insightful meditations on Russell's idea of a 'class as many' in a way that may be useful to many philosophers.

In discussing both plurals and NCNs, Laycock's special focus is on reference, and it seems that we need to figure out what we are referring to (not an individual) when we talk about water. He rejects the idea that it must be individual bits of water, but then where do we go? Should we even call it reference? To answer this adequately, we need a fuller discussion of mass predication, so that we can understand how a reference (or seeming reference) to water functions when we say something about water. If we are not to evaluate 'x is water' relative to an assignment of an individual to *x*, then how do we evaluate this (and, ultimately, more complex sentences in which it plays a role)? Or should we find a whole new way of analyzing sentences with NCNs that avoids having to analyze clauses like 'x is water'? It seems to me that a thoughtful reader of Laycock's work will ask these questions but will not find an answer here.

Laycock's attention to reference may be dialectically motivated. That is where the discussion has been, and he is really challenging the idea that there is any *thing* to be referred to when NCNs are used. This leaves us with questions about predication that he does not answer, though. How are we to understand fundamental predications like 'That is water,' if we don't understand the use of 'That' as a reference to something? The bits-of-stuff approach provides an answer to these questions without disturbing the standard logical framework. Those of us in sympathy with Laycock's concerns need to provide more if we are to be able to develop a systematic semantics for sentence involving NCNs.

3. Identity and individuality

Issues about the semantics of mass identity play a role in many discussions of mass terms. Consider Helen Cartwright's example:¹⁶

The gold of which my ring is made is the same gold as the gold of which Aunt Suzie's ring was made.

This is a normal identity claim, it would seem. The same gold constitutes (at different times) each of the rings. Cartwright uses such identity claims as a basis for asserting the existence of an individual thing, the bit of gold (she uses the words 'quantity of gold') that first constitutes the ring ASR and then, after melting and reformation, the ring HCR. She argues for single subjects of identity statements (sets) in the plural case, and proceeds to the mass case by analogy. She argues that in the plural case, an identity claim is semantically a singular identity about a set: 'Identical cats are one — one cat or one set of cats' (PR, 1970, 27). To say that these cats are the same cats as those is to make a singular identity claim about a set, on her view. Similarly, to say that this gold is the same gold as that, is to make a singular identity claim about a bit ('quantity') of gold.

Laycock takes the opposite view on both plurals and masses, and Laycock's suggestion that we cannot apply singularist conceptions of identity and persistence to mass references needs to be worked out in light of such claims. Consider:

The sheep in this field today = the sheep in that field yesterday

Whether we take 'sheep' as singular or plural, we have a straightforward identity claim. We can make plural identity claims, and there is nothing that requires that they somehow rest on singular predications, except for the bias based on standard first-order logic. (Consider also the example mentioned earlier, 'A and B = C and D,' which asserts an identity but not any singular identity.) Similarly, it seems to Laycock, there is nothing to require that there is some individual *thing*, a bit of gold, that is a distinct individual from both ASR and HCR. There is some gold that constitutes first ASR and then HCR, but it is some stuff, not another individual.

Let's be as clear as we can about what we need to account for if we try to develop a view along these lines. We can have terms that have a

16 Cartwright 1970, 27

use without referring to an individual thing or some individual things, but rather to some stuff; those terms can appear in argument places in identities and in attributions of properties and relations. When I say that some gold *G* constituted ASR and HCR, I am not saying that it was some distinct individual from ASR and HCR. It is some stuff, and they are the individuals. The gold *G* is never identical to one of those individuals, it is the stuff, the constitutive matter, of each of them.

Work on plurals has begun to sort out the semantic issues raised in taking plurals as semantically legitimate on their own, without reduction to the singular. We await a systematic treatment of mass reference, predication and quantification; such a systematic treatment is not a part of Laycock's goal in this work.

When I look to this work for guidance about how to get started on this task, I become perplexed about where Laycock stands on some of the key ideas that need to go into such an account. Laycock contrasts stuff and individuals with words like these:

'to speak of a certain amount of stuff of a particular kind in a particular region is not to speak of something with a built-in feature of persistence.' (p. 26)

'A broadening vision beyond the realm of body is indeed called for ... The notion of an amount of stuff — the three ounces of ice ... or the beer now in a certain jug, or the wax of a candle (burning or not) — is not that of something which retains a built-in, fixed identity through time.' (28)

But if we are to also say that the gold in ASR is the same gold as the gold in HCR, then we will need to allow for persistence and identity through time after all. From Laycock's work, I have trouble putting together an account of NCN reference that allows for such statements of identity and that also differs from the object model in the ways he suggests. He seems to walk away from the issues about the persistence of the gold in the rings ASR and HCR rather than actually offering any account of it. This may be because he regards the case of the gold as a very special case. Some stuff persists in this case (as we are imagining it), but, unlike an object, this stuff does not have a 'built-in feature of persistence.'

Laycock regularly links conditions of persistence and principles of individuation. If I bring together some beer *S* with some disjoint beer *S'*, I have some beer *S2*,¹⁷ that is generally true with the application of

17 Of course, in some cases the actual bringing together of some stuff *S* and some more of it *S'* might cause an explosion or other destructive event. We are considering conceptual bringing together, not the peculiarities of empirical combination.

NCNs.¹⁸ This is not generally true for count nouns. If I bring together a person P and a person P', I don't get a larger person P2; I have two people instead. In distinguishing CNs and NCNs, it is to the point to talk about the conditions of separateness in objects, and Laycock stresses the lack of a principle of individuation as one thing that differentiates reference related to NCNs. That is why combining S and S' yields S2 but P and P' resist such combination.

In any case, though, it sometimes appears that Laycock's view of objects includes higher standards of continuity and separateness in objects than semantics and metaphysics require or perhaps even allow. When I pour S and S' together, I might say that both S and S' continue to exist, though I no longer have a way of separating them. The two have become intermingled, but each still exists even if I have a hard time separating them or pointing them out, and even if someone who comes in after the intermingling would have no way to conceptually or physically separate the two intermingled masses (unless I provide the relevant historical information as a basis for distinguishing the now inseparable quantities of beer). In addition, one might hold that S2 existed even before the intermingling; it was just a discontinuous object, in two separate containers. And can't we say something similar about P, P' and their mereological sum?

The cases still show the difference between NCNs and count nouns. S2 is beer, just like S and S', but P2 is not a person — P2 is (are?) two people, or possibly a mereological sum of people, but not a person. When we consider people together, we count more people and use the plural; when we consider more beer together, we measure more beer but stay with the grammatical non-plural. Pretty much any (large enough) sub-division of beer is a measurable amount of beer; we get (countable numbers of) people from sub-dividing people only if we respect their natural conditions of unity and separateness when we subdivide. These are fundamental differences. In saying that typical NCNs do not carry any 'built-in feature of persistence' or that a quantity of water is not something that 'retains a built-in, fixed identity through time,' Laycock may be emphasizing 'built-in, fixed identity.' But how NCN and CN differences relate to general issues of continuity, identity and individuation is not something that I feel Laycock has successfully

18 This cumulativity seems to apply generally to basic NCNs, and it is often cited as a characteristic feature. It is not a feature of more complex phrases, such as 'water weighing less than a pound,' however. (In the case of plurals, there are some single-word plurals that are non-cumulative, such as 'classmates.' I haven't found any such NCNs.)

clarified, though reading his work will help in getting to some of the important issues.

Considering gold now, we can also strengthen Laycock's ice example. Suppose that instead of considering melting ice, we were considering some gold that was gradually wearing away. Suppose further that as it wears away, it also decomposes, so that what rubs off the ring or other object composed of gold is no longer gold after it rubs off. If we identify the gold at t_1 , and then consider t_2 , after some erosion has occurred, then:

the gold at $t_1 \neq$ the gold at t_2

Nevertheless, the gold at t_1 is not completely gone until some time t_3 .

Several different answers to this version of the puzzle seem possible, fitting slightly different views about matter, mass terms, identification of what undergoes processes, etc.. For example:

Answer 1: We might try to give the same kind of answer as before, which would be that there is something that persists through the change and is only accidentally gold. That would have to be the underlying matter (perhaps the sub-atomic particles, for a plural answer) in this case. That persists (they persist), it is (all are) 'gold-configured' at t_1 , some is (are) and some is (are) not at t_2 , and none is (are) at t_3 .¹⁹ The gold at t_2 is only some of the gold at t_1 , and so is not identical to it. (Whether we are talking about some underlying stuff or some underlying particles, this is a much more controversial use of the accidental-essential distinction than in the ice case.)

Answer 2: We might take the view that the definite descriptions used in identifying some things or some stuff undergoing any process of this kind involve a relation to time-indexes that is sometimes confusing. Suppose that people empty a stadium from t_1 to t_3 . The people who empty a stadium are the ones who were inside at t_1 , and the emptying goes on from t_1 to t_3 . But we can also ask about a particular intermediate point, t_2 , what people are emptying the stadium at t_2 . That asks about those from among the initial group who are still involved in the process. Most uses of the definite description 'The people emptying the stadium' will be ambiguous, referring to a moment (those directly involved in

19 Or at least none have been continuously gold-configured from t_1 to t_3 .

the process at that time) or to a longer period (those involved in the process throughout its unfolding). Only at t_1 are those the same. Similar remarks apply to the eroding gold. With this kind of view, it seems that one must hold that the referent of 'the gold at t_1 ' ceases to exist immediately after t_1 (when the tiniest bit is gone), even though not every sub-bit of the gold at t_1 is gone until t_3 . Once we put in the time indexes, this doesn't seem at all puzzling.

Answer 3: Process predications apply to extension-determining functions rather than to the extension determined at a particular moment. This is a familiar problem in formal semantics.²⁰ When we say that the temperature is rising, and the temperature is 30, we are not saying that 30 is rising. The meaning of 'the gold' (like 'the temperature') determines a function that picks out different things at different times, and a predicate like 'is wearing away' (or 'is rising') tells us how the values at different times must be related. (Roughly: if t_j is later than t_i , then the value at t_j is some of the value at t_i , and for many distinct times the value is different.) A predicate like 'wearing away' does not apply to the extension at a moment, but instead tells us about the function that determines that extension relative to a time.

There may be other ways to respond, as well. My point is not to say which of these responses is right, but rather to suggest some ideas that Laycock's book might profitably have considered as a basis for making his own views clearer.

4. *Ideal language*

Laycock expresses some sympathy for ideal language projects (Frege, Russell, Quine), where an ideal language is to reveal its ontology through a close correspondence of words and objects. In discussing the problem of developing an ideal language for talking about stuff, Laycock forcefully presents a certain problem in doing so. If we are not to reduce mass talk to thing talk by introducing a realm of entities, then it seems that we must somehow provide for talk about non-entities — water, beer, dirt, and other stuff. Plural discourse has natural semantic units that are the same as those of singular discourse, but stuff

20 Montague 1974, 67-8. The observation in terms of rising temperatures is there attributed to Barbara Partee.

discourse has no natural semantic units, and reference and predication seem to proceed on a different model than that of an individual and a property.

Although sympathetic to these idealizing projects, Laycock ultimately does not believe that any such ideal language for mass terms is possible. Since some natural languages have mass terms, some of us would like to understand their semantics, even if those languages do not meet Laycock's standards for ideality. What is the range of predications involving non-count nouns, and how are they to be understood if mass predication is not to be reduced to more familiar predications of individuals? There is a compelling case here for working on the problem, but little in the way of an answer to it. The difference between *many* and *much* is discussed, but that is just one case of parallel but distinct systems of quantification (for NCNs and for CNs) that would be worth discussing with a thorough underlying semantics. What is the same, accounting for the clear parallels, what is different, and is there some general approach that unifies them without forced singularization of mass references and predications? Laycock's work seems to lead naturally to those questions, and his work suggests some important constraints on the answer, but it doesn't provide the answers that would be needed for a systematic semantics.

I take it that the last paragraph of the main text (170-1), in praise of Romanticism, is intended to undercut such expectations of systematicity. That does not remove my disappointment, but it does at least indicate that he is not failing to meet his own goals.

III Other issues

1. *An alternative way to singularize?*

In trying to understand the claim that water surrounds our island, it might seem attractive to take a somewhat Quinean route. The word 'water' might be taken to refer to all of the world's water.²¹ The statement 'Water surrounds our island' could then be implicitly quantified. 'Water surrounds our island' = 'Some (of the world's) water surrounds our island.' This again finds an individual to talk about, and it leaves us with the issue of using quantification to talk about the parts of this large, scattered thing. But quantification is now just talking about its parts (some water = some of it, most water = most of it, all water = all

21 See W.V.O. Quine, *Word and Object*, 90-100. Quine does not present his ideas about this as semantics for ordinary language.

of it) on the basis of existence only (*some water*), measure of some kind (*5 litres of water, 10 kilograms of water, lots of water*) or proportion (*most water*).

Quine, however, has an argument against this approach himself.²² We cannot generally understand 'This is water' as 'This is some part of Water,' where 'Water' functions as a name (for all of the watery stuff), because some parts of Water (the atoms) are too small to be water. Our analysis would incorrectly make 'This is water' true of even a single hydrogen atom. Any attempt to limit this to sufficiently large parts raises the question of how large is sufficiently large, and the answer seems to be *large enough to be water*, where we must use 'water' as a general term. So this approach fails as a way to avoid using 'water' as a general term.

Quine is more sanguine about understanding subject uses of 'water' as uses of 'water' as a name for all of the world's water. Here Quine considers generic sentences like

(13) Water is a fluid.

Laycock takes up such examples in criticizing Quine, and Laycock raises an important point here.²³ When we consider a sentence like

(14) Agnes is a lamb.

where there is a genuine proper name, we can imagine that there would be an individual qualitatively like Agnes but distinct from her. However, 'the notion of a liquid numerically distinct though qualitatively indistinguishable from water ... is just plain incoherent' (175). Even in (13), it seems that we use the word in a general way, linking to a quality, not to a particular, not even a very large and scattered particular. And Laycock also points out that if we dichotomize mass terms, analyzing some uses as general and some as singular references to a particular, we will have difficulty making appropriate links to account for the validity of arguments in which the term has multiple occurrences (176).

Quine sees mass terms (non-count nouns) as 'pre-individuative,' though 'non-individuative' is more the point (Laycock), since NCNs

22 *Word and Object*, 99

23 These 'generic' uses are actually very specialized even in subject position. Sentences like 'Water is spreading around in my basement,' would be more typical subject uses, not considered directly by Quine. The general considerations raised by Quine and considered in the preceding paragraph apply to these more typical uses, however.

are an important part of our adult vocabulary. (Laycock, p. 177) Unlike 'dog', 'water' does not carry with it a principle of division for the things it applies to. Putting it the other way around, 'the existence of this substance does not in turn consist of a class of discrete objects ("waters")' (177). Mass (non-count) terms do not have semantic atoms (in the way that plurals do). There may be minimal parts of water, but the truth or falsity of that is no part of semantics.

2. A weak distinction

The main portion of the book (there are several appendices) closes with what seems to be an unfortunate discussion (159 ff). This sentence is ambiguous:

[c2] Some geese have been grazing in the meadow since dawn.

Laycock identifies identity-involving (the same geese all morning) and identity-free (maybe different geese at different parts of the morning) readings, and he attempts to use this distinction further. But this two-fold distinction is not the appropriate one to use. The ambiguity is an ordinary scope ambiguity.²⁴

[c2'] Some geese *X* are such that (*X* have been grazing in the meadow since dawn).

[c2''] Since dawn it has been true (at each *t*) that some geese were grazing in the meadow (at *t*).

The superiority of the scope analysis is supported by the fact that a more complicated sentence can exhibit a three-way ambiguity.²⁵

[c2*] Alice said that some geese have been grazing in the meadow since dawn.

[c2*1] Some geese *X* are such that Alice said (of *X*) that *X* have been grazing in the meadow since dawn.

[c2*2] Alice said that some geese *X* are such that (*X* have been grazing in the meadow since dawn)

24 Adam Sennet makes a similar criticism in his review.

25 The sentence 'It is possible that that some geese have been grazing in the meadow since dawn' would similarly have multiple readings, distinguished by scope.

[c2*3] Alice said that since dawn it has been true (at each *t*) that some geese were grazing in the meadow (at *t*).

No two-way distinction can by itself give us the three readings. If I try to apply Laycock's distinction, I suppose that I would say that [c2*1] and [c2*2] are both identity-involving. But then we have failed to make all of the distinctions needed for disambiguation, and the familiar scope distinction can do so.

This is unfortunate, because we hope to finish our reading with some insight about the proper understanding of NCN use. If we do not have reference to individuals, then how are we to understand quantification and predication involving NCNs? Instead, we get a preliminary application of this weak distinction to similar mass examples. Perhaps it is just as well that we get only a bare hint of the concerns it leads to (165-7).

Laycock is concerned to show that reference to individuals is not involved in the semantics of phrases involving NCNs, but he does not provide any adequate framework for developing an alternative account of the role of NCNs in quantifier phrases and in predications.

3. 'the'

Richard Sharvy pointed out that Russell's theory of definite descriptions, as stated, works only for singular uses of 'the.'²⁶ But 'the' is also used with plural CNs and with NCNs:

- (15) The lambs weigh more than one ton (are more than 100 in number).
- (16) The lamb (NCN) weighs more than one ton (will fill a whole freezer).

One simple adaptation of the Russellian analysis would be wrong:

- (15*) Some lambs *X*, such that for any lambs *Y*, $Y = X$, are such that *X* weigh more than one ton.
- (16*) Some lamb (NCN) μ , such that for any lamb *v*, $v = \mu$, is such that μ weighs more than one ton.

26 Russell 1905 and Sharvy 1980

The two lambs Agnes and Baahb are not identical to all of the lambs in question (weighing more than a ton), even if they are among them. The lamb that I consume will not be identical to the all of the lamb (weighing more than a ton), even if it is some of it. We cannot get uniqueness in either the plural or the NCN case.

Sharvy's solution, for a more general account of 'the,' is to point out that if we substitute maximality for identity, then we get correct accounts in the mass and plural cases:

- (15S) Some lambs X , such that for any lambs Y , Y are among X , are such that X weigh more than one ton.
- (16S) Some lamb (NCN) μ , such that for any lamb v , v is some of μ , is such that μ weighs more than one ton.

Note that the singular CN case can be seen as a special case of the plural, where maximality is identity because only one individual is involved.²⁷

My Sharvian analysis (16S) is not quite what Sharvy says. Sharvy takes it that each sub-mass of the lamb, each bit of lamb, is an individual, and so he would say (if he adopted my 'bit' terminology):

- (16S*) Some (big) bit of lamb x , such that for any bit of lamb y , y is part of x , is such that x weighs more than one ton.

Of course Laycock criticizes this for reasons we are familiar with. Laycock is against the idea that the semantics of mass terms requires that we think of some stuff as a thing (a bit of stuff). And since (16S*) requires that, it must be rejected as an analysis of the use of 'the' with NCNs. I think that Laycock is right about this, but this criticism should not blind us to the virtue of Sharvy's recognition of maximality as central to the analysis of uses of 'the.'

There are real questions about the analysis of the maximality clauses in (13S) and (14S), employing the concepts *are among* and *is some of*; especially whether they can be seen as involving the same concepts, or perhaps at least two concepts that are unified in some way. It is clear that both are transitive, anti-symmetric concepts that support the concept of *maximality*; they (respectively) support the possibility (though

27 Cf. McKay, Chapter 7

not the certainty) of some individuals that are *among*-maximal and some stuff that is *some-of*-maximal.²⁸

A more systematic consideration of NCN quantifier phrases and their semantics might have cleared a path that would have led Laycock to the appreciation of a Sharvian generalization of the Russellian account and got us closer to the core of NCN use. When we use a NCN non-predicatively, we ordinarily use it in ways that might be understood as quantifications. Even most bare uses:

Water is surrounding the island.

Water is seeping into the basement.

might be interpretable as implicitly quantificational, as ‘some water.’ And references to ‘the water,’ if the Sharvian analysis is right, are also quantificational, following Russell. The definite description requires quantification and the concept that serves as the base for the maximality clause, v is some of μ . (I suspect that analysis of other quantificational concepts, like *most water*, will also require this concept.) Neither quantification nor the relation, v is some of μ , gets systematic treatment from Laycock.

The careful thought in Laycock’s work will lead some of us to look for systematic treatment of mass quantification and mass predication, and perhaps it is too much to expect that he would provide them. In any case, the book constitutes a valuable consideration of the language and ontology of NCNs.²⁹

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28 Of course there are also many questions about the aptness of the Russellian account of definite descriptions that would also extend to this similar account. See McKay Chapters 8 and 9 for discussion of these issues as they apply to the plural case.

29 I thank Mark Heller, Kathrin Koslicki, Henry Laycock, Kris McDaniel and Adam Sennet for helpful suggestions on drafts of this article.

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