Explaining necessary truths about resemblance

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1 Modal objections to Class Nominalism

Armstrong attributes to the Class Nominalist the thesis that

(1) To be an electron is to be a member of the class of electrons.

which, I claimed last week, is to be understood as follows:

(2) The class of electrons is such that to be an electron is to be a member of it.

One thing we know about real definitions is that if ψ is the real definition of φ, then it is a **necessary** truth that all and only ψs are φs. So (2) entails that

(3) The class of electrons is such that necessarily, an object x is an electron if and only if x is a member of it.

But this seems to be false, given the uncontroversial claim that *classes have their members essentially*, which we can spell out as follows:

(4) For any class y, it is necessary that for all x, $x \in y$ if and only if it is *actually* the case that $x \in y$.

(3) and (4) together entail that

(5) Necessarily, for all x, x is an electron if and only if x is *actually* among the electrons.

This means (i) that nothing that is actually an electron could fail to be an electron — this is not so implausible, though the same is not true for other plausible candidates to be 'physically basic' predicates. And (ii) that there could not be any electrons other than those there actually are — which is enormously implausible.

2 Modal objections to Predicate and Concept Nominalism

Armstrong attributes to the Predicate Nominalist the thesis that

(6) To be an electron is to be something to which the predicate 'is an electron' applies.

The suggestion is that facts of the form 'x is a predicate that applies to y' are primitive. This seems implausible: surely there is some *explanation* for the fact that our predicates apply to the things they apply to, rather than to anything else. Moreover, as Armstrong points out (p. 11), this account faces a modal objection: it seems to entail the absurd conclusion that

(7) Necessarily, if there are any electrons, the predicate 'is an electron' exists and applies to them.

But (i) it seems we could very easily have used the predicate 'is an electron' differently, so as to apply to, say, tomatoes; and (ii) if human beings and their languages had never existed, the predicate 'is an electron' wouldn't have existed either—or at least it wouldn't have applied to anything—and yet there might very well have been electrons.

3 What are we looking for in our real definitions?

So far, we've seen that the problem of universals seems to boil down to the challenge to provide or withhold real definitions for (i) certain very general predicates having to do with resemblance, e.g. 'is a duplicate of', and (ii) "physically basic" predicates like 'electron' (or whatever) for which the standard methods of the sciences do not allow us to find real definitions.

One thing we might expect such a set of real definitions to provide is some *explanation* for certain necessary truths involving the relevant predicates. For example, it seems to be necessary that

(8) For any x and y, if x is an electron and y is a duplicate of x, then y is an electron.

It seems weird to suggest that this sentence is just a *brute* necessity: surely there must be some explanation for it, in terms of *what it is* for something to be an electron and/or what it is for something to be a duplicate of something else.

Certainly the Realist can give an elegant explanation of the necessity of (8), if he endorses the following real definitions

(9) For x to be a duplicate of y is for x and y to instantiate all the same properties (universals).

(10) To be an electron is to instantiate *electronhood*.

Can the Nominalist find an alternative explanation? There are three possible kinds of strategies:

(i) Take 'is a duplicate of'—or some other predicate having to do with resemblance—as primitive, and use this predicate in your real definition of 'electron'. Thus the *Resemblance Nominalist*.

(ii) Take 'electron'—or some other "physically basic" predicates—as primitive, and use these predicates in your real definition of 'is a duplicate of' (as well as 'resembles', etc.) Thus the *Ostrich Nominalist*, whom Armstrong does not discuss in this book, but whom we will be discussing.

(iii) Take some other predicates (neither physically basic ones, nor predicates "having to do with resemblance") as primitive, and use them in your analysis both of 'is a duplicate of' and of 'electron'. Thus, for example, the *Primtive Natural Class Nominalist*.

4 Armstrong's range of options

5 Primitive Natural Class Nominalism

One kind of Primitive Natural Class Nominalist—not Armstrong's!—seems to recognise just two primitive predicates:

(i) The monadic predicate 'is a natural class'

(ii) The dyadic predicate 'is a member of'

What does 'is a natural class' mean? Well, it's officially primitive, hence undefinable: but if we are concerned with the "order of knowing" rather than the "order of being", we can think of it as meaning 'is a class that comprises all and only the instances of some type'.

> Of course 'type' is vague—do vehicles comprise a type? Chairmen of multinational corporations? ...—so we might want to specify the relevant kind of type more precisely.
>
> An attractive picture for a Primitive Natural Class Nominalist to hold (I think): the only natural classes are the extensions of basic physical predicates. But of course this isn't the only possible view.

Someone who endorses this view can give the following real definition of 'duplicate':

(11) For x to be a duplicate of y is for x and y to be members of all the same natural classes.

However, it's not clear how we might analyse 'electron' in terms of this vocabulary. Armstrong seems to assume that the Natural Class Nominalist will have to endorse something like

(1) To be an electron is to be a member of the class of electrons

or perhaps

(12) To be an electron is to be a member of the class of electrons, and such that the class of electrons is natural.

Both of these are subject to the Modal Objection we considered earlier.

6 Naturalness as coming in degrees?

Armstrong considers a slightly different view, in which naturalness is said to "come in degrees". What does this mean? Maybe the thought is that it is the dyadic predicate 'is a more natural class than', rather than the monadic 'is a natural class', that is primitive.

> Lots of hard questions arise when we ask ourselves what might be the extension of the predicate 'is a more natural class than'? EG: Is the class of hydrogen atoms more or less natural than the class of electrons less any one of its members?
>
> We can hardly say it's *vague*, if it's supposed to be primitive. Vagueness as semantic indecision.
>
> So there's going to be an epistemological problem here for the Armstrong-style primitive natural class nominalist: what method can we use to work out the answers to the hard questions? Why is that a good method to use? One could claim that we just can't know the answers to these questions: but it seems bad for a metaphysical theory to posit a huge area of ignorance that makes no difference for any practical purposes.

7 Armstrong's objections to Primitive Natural Class Nominalism

III: The Coextension Problem Armstrong asserts that the PNCNist (who isn't a Lewis-style modal realist) must claim that it's necessarily true that no two types have exactly the same instances. This seems bad: couldn't God delete, say, all the negatively charged things that are not electrons, thereby making it true that the electrons are all and only the negatively charged things?

Why does Armstrong say that? He seems to be imagining that the PNCNist is someone who says that types just *are* natural classes. But (i) at least in the way I understand the term, this view would not be a form of Nominalism! (ii) In any case, there is no reason someone who adopted the basic machinery of PNCNism would have to say that.

IV: Wolterstorff's Objection 'The class of electrons' is not what philosophers of language call a *rigid name*: the class of electrons could have been something other than what it actually is. Armstrong suggests that the PNCNist will have to say that similarly, the type *being an electron* could have been something other than what it actually is, which seems strange.

Again, this seems to assume that the PNCNist *identifies* types with natural classes.

V: Types Determine Classes, Not Classes Types Armstrong says that it's implausible to say that something is an electron *because* it's a member of the class of electrons: he thinks the 'because' should go the other way around.

Distinguish 'is a member of the class of electrons, whatever class that might be' from 'is a member of *this* class (which happens to be the class of electrons'. If we interpret 'is a member of the class of electrons' the first way, the PNCNist can agree with Armstrong. If we interpret it the second way, the PNCNist who accepts (1) or (12) must indeed accept the 'because' sentence that Armstrong finds implausible, but at any rate no-one should accept the converse 'because' sentence. (For no class y is it true that x is a member of y because x is an electron.)

VI: The Causal Argument When something happens *because* something is an electron, the PNCNist must claim that the whole class of electrons is involved in the cause, in the sense that the cause is a fact partly about the class. But causation should be an "intrinsic" matter.

The Problem about Relations