Abstract objects: an introduction

November 12th, 2001

1. Examples

Paradigm cases of abstract objects:
Numbers
Sets, including both pure sets (e.g. the null set, the unit set of the null set...) and impure sets like {Bill Clinton, Mars}
Other mathematical entities—e.g. ordered pairs, groups, topological spaces...

Properties: whiteness, justice, doghood, the property of being two feet to the north of a cow...
Relations: adjacency, resemblance, the relation of being two things the first of which is on top of the second...
Propositions: the proposition that the earth is round, Murphy's Law...

Contestable cases:
Biological species, genera, etc: *Gorilla gorilla*, *Chordata*.
Literary works: *The Red and the Black*, *Principia Mathematica*...
Certain other artistic creations: Mahler's 5th symphony, the hokey-cokey...
Fictional characters like Sherlock Holmes (according to van Inwagen)
Social entities: Microsoft, the Supreme Court, the People's Republic of China...
Linguistic entities: the letter 'a', the sentence 'snow is white'...
Events: the Second World War, this lecture, my tying my shoelaces this morning...

2. What does 'abstract' mean?

For each of the items on the 'contestable' list, you'll probably be able to find some philosophers who agree that the entities in question exist, but argue vigorously about whether they should count as 'abstract'. What are they arguing about? What does this word 'abstract' (and its opposite, 'concrete') mean?

A hard question, and a rather uninteresting one.

According to one common characterisation, abstract objects are distinguished by not being located in space and time. But...

- Symphonies, companies, etc. do seem to have a beginning in time: the hokey-cokey was invented, not discovered.
- Impure sets like {Clinton, Mars} (Or {Clinton, {Clinton, {Mars, {Clinton}}}} are, arguably, located when and where their members are located.
- Some philosophers claim that the property whiteness is "wholly located" wherever and whenever each white object is.

- All sorts of concrete objects are supposed not to be located in space and time: Cartesian souls, God...

According to another common characterisation, abstract objects are distinguished by their lack of *causal efficacy*. But...

- We can, it seems, imagine a material object that lacks causal efficicacy (a particle sitting in the void), and material objects are surely concrete.
- Many of the 'contestable' entities arguably have causal efficacy.
- It seems perfectly OK to say that the sheet was selected because it had the property of being white, or that I uttered certain sounds because I believed the Pythagorean Theorem. It's not clear why this shouldn't mean that the property whiteness, or the Pythagorean Theorem, count as having "causal efficacy".

3. Nominalism

Nominalism is the claim that there are no abstract objects. This claim inherits all the unclarity of the word 'abstract'.

Nevertheless, the debate about whether there are numbers, the debate about whether there are sets, the debate about whether there are properties, and the rest, have many common features which make it convenient to treat them together.

I'll often talk about what 'the nominalist' says about a given argument. But you shouldn't get the impression that anyone who denies the existence of entities of one of these sorts must deny the existence of all the rest!

4. Nominalism and common sense

What does "common sense" say about the claims nominalists are interested in? The answer isn't immediately obvious: before we take up philosophy, we don't go around saying things like 'There are numbers' or 'there are no numbers'.

However, people do go around saying other things which apparently entail that there are abstract objects of various sorts. So nominalists have to contend with arguments such as the following:

> Some prime numbers differ by two from other prime numbers.
> Therefore, there are numbers.

> New York and San Francisco have many common properties that other U.S. cities lack.
> Therefore, there are properties.

> The relations between the C.I.A. and the F.B.I. are very complex.
> Therefore, there are relations.

> 'Snow is white' is a true sentence.

Therefore, there are sentences.

These arguments are almost indisputably valid. So nominalists must say some surprising things: no prime numbers differ by two from other prime numbers; New York and San Francisco have no common properties; etc.

The nominalist will presumably have some sort of story about why, in ordinary contexts, it's a good thing for us to *say* that, e.g., New York and San Francisco have many common properties, despite the fact that they don't; and why, in ordinary contexts, it would be misleading to say that they don't.

Of course, the mere fact that people go around saying the problematic sentences doesn't show that they believe them. *Nominalists* certainly don't believe them, for example! So, if we want to establish that nominalism is at odds with what most people believe, it's not enough to point out that people say these things: you have to argue that they believe what they are saying.

5. 'Rabbit out of hat' arguments for the existence of abstract objects

1a. There are forty people in the room.
(Note: here the word 'forty' is occurring as an adjective)
1b. Therefore, the number of people in the room is forty.
(Note: here the word 'forty' is occurring as a name)
1c. Therefore, there are numbers.

2a. The wall is white.
2b. Therefore, the wall has the property of being white.
2c. Therefore, there are properties.

3a. X resembles Y
3b. Therefore, X and Y stand in the relation of resemblance
3c. Therefore, there are relations.

6. Common features of the 'rabbit out of hat' arguments

The 'a' sentences don't *obviously* entail the existence of numbers, properties, relations...
The 'b' sentences strike us as *equivalent* to the 'a' sentences: they seem like cumbersome ways to say the same thing.
But the 'b' sentences seem to logically entail the 'c' sentences.

If you think that argument 1 gives us a priori knowledge that if there are forty people in the room, there are numbers, you probably also think that we can know a priori that there are numbers, hence that something exists (c.f. ontological argument, Hume quote).

4a. Suppose for the sake of argument that nothing at all exists.
4b. Then the number of things is zero.
4c. Hence, there are numbers.

4d. Hence, it is not the case that nothing at all exists: contradiction.
4e. Hence, something must exist, since the assumption that nothing exists has been shown to lead to a contradiction.

7. Nominalist responses to the 'rabbit out of hat' arguments

The nominalist has three basic options:
(i) Deny the premise (1a, 2a, 3a)
(ii) Accept the premise but deny the intermediate conclusion (1b, 2b, 3b)
(iii) Accept the intermediate conclusion but deny the final conclusion (1c, 2c, 3c)

Option (i) seems out of the question as a general strategy. So we're left with (ii) and (iii).

(iii) seems rather implausible taken on its own. It would be more plausible for the nominalist to claim that there is some ambiguity in the 'b' sentences, so that on one reading they are entailed by the 'a' sentences and true, and on another reading they entail the 'c' sentences and are false.