Theories of Reference

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9.0 The Descriptive Theory of Reference

One potential objection to functionalism is that it relies on an antiquated theory of reference - that is, a theory of how words get their meanings.

How is it true to use words like ‘cat’ in reference to a certain animal? How is it that it is true of that animal that it is a cat, and false of some other animal that it is a cat? This is the problem of how words mean – to what the words refer, and how they can be used correctly.

Remember that according to the functionalist, it is true of a certain person that they are in pain if they have state that fills such-and-such a functional role. Thus, the conditions upon which it is true for me to say ‘He is in pain’ are defined as those conditions when he has a state that plays a certain functional role. In this sense, the word ‘pain’ refers to that state which fills that functional role - it picks out that state in the world by picking out its functional role.

Philosophers used to think that words get their meanings via a kind of short hand – the word ‘cat’ was just a place holder for ‘four-legged hairy creatures that kill birds and mice, were worshipped by Egyptians, make me sneeze, etc.’. This is the descriptive theory of the reference – words are definite descriptions. The word ‘water’ is simply a place holder for ‘the clear, odourless liquid that comes out of taps, fills lakes, falls from the sky, etc.’.

9.1 Virtues of the Definite Description theory

The definite description theory of reference is a good thing for two reasons: 1st we can understand and use words like ‘water’ long before we understand that water is H$_2$O. 2nd we can allow for the vagueness and ambiguity of our language, in the sense of cluster concepts. For example, the word ‘atom’ was originally introduced as ‘that which is indivisible’, but it later turned out that atoms could be split - does that falsify the application of the word ‘atom’ to atoms? No, we continued to call atoms ‘atoms’, even after the definition was false.

9.2 Vices of the Definite Description theory

1. People may vary a great deal in the list of properties that are required for a description – but they may still use the words correctly. Thus, the only part of a description which is essential for its correct deployment is ‘there is something called X’ by experts. (Take, for example a beech and an elm).

2. I can successfully refer to a something without knowing enough about it to distinguish it from a host of other things. Polythene, for example. I can truthfully say ‘I know almost nothing about Polythene’.

3. Hesperus & Phosphorus example

   If the definite description theory is correct, Hesperus is not the same as phosphorous.

4. TWIN EARTH: According to the descriptive theory of reference, if something has none of the properties normally associated with water, it cannot be water, and if
something has all of the properties normally associated with water, it must be water. Suppose an imaginary case: a possible world that is populated with twin-earthians who look pretty much like us. Their language is superficially like ours (i.e. it sounds like English). But, the stuff that falls from the sky, comes out of taps, fills lakes, is necessary for life, etc. is not $H_2O$, it is XYZ. There is $H_2O$ on Twin Earth, but it is a black, tarry substance, and it does not fall from the sky, run out of taps, fill lakes, is essential for life, etc.

In earth-English, then: what stuff is water on Twin Earth?

Water is not the stuff that comes out of taps on Twin Earth, it is $H_2O$. Therefore, when the twin earthlings use the word that sounds like ‘water’, they are referring to XYZ, and therefore mean XYZ. Thus, their language is not English (as the meanings are not the same).

It follows from this that the definite description theory is wrong (or at least it does not work with our intuitions about the way that language gets its meaning).

### 10.0 The Causal Theory of Reference

There are a set of paradigm examples (exemplars) of water: puddles, rain, lakes, etc. We suppose that all of these exemplars share fundamentally important – that they are all basically the same stuff.

So we call this stuff ‘water’. (It is important to note that the term water predates our knowledge of the chemical composition $H_2O$). The black tarry stuff on Twin Earth is water in virtue of the fact that it is the same stuff as the watery stuff on earth. That is, the word ‘water’ does not pick out ‘what ever fills the water-role’, but rather ‘the stuff that fills the water-role’. And our term ‘water’ is our term - that is, it is a term of the actual earth. Therefore, the term refers to ‘the stuff that fills the water-role on earth’. And that stuff is $H_2O$.

$H_2O$ acted upon our senses when we named the stuff which the exemplars share ‘water’, just as it acted upon our senses when the French named it ‘eau’. Or, in other words, we have interacted causally with $H_2O$, and that is how our word ‘water’ comes to pick out $H_2O$.

Thus, the stuff that fills the water-role on Twin-Earth is not water, because we have not interacted with it causally.

There are further problems: i.e. if Jones travelled to Twin-Earth, does his word ‘water’ pick out $H_2O$ or XYZ? Does the theory only apply to natural kinds? What about kinds that appear to be natural, but really are not (i.e. Jade)

### 10.1 Moderate Causal Theory

This is the kind of view being hinted at here: our words refer to natural kinds via their superficial properties. The schema is something like: 1. Water is the stuff that plays the watery role. 2. The stuff that fulfils the watery role is $H_2O$. 3. Therefore, water is $H_2O$. 
Consider Hesperus and Phosphorus again: each have a description, and we discover that the same thing (Venus) fulfils that description. Thus, we can say that Hesperus is Phosphorus. Venus is causally responsible for both terms ‘Hesperus’ and ‘Phosphorus’, and therefore is the meaning of both.

There is a further problem: there are a number of properties which mediate our experience of water - light reflected from the water, retinal stimulation, activity in the lateral geniculate nucleus, etc. This raises two problems:

1st. (Depth) How is it that ‘water’ refers to ‘H\textsubscript{2}O’ and not ‘light reflected by H\textsubscript{2}O’, etc.? (i.e. how deep in the causal chain does our reference go?)

2nd: (Spread) ‘the watery stuff’ is a list of properties - why is it that ‘water’ picks out ‘is H\textsubscript{2}O’ and not ‘is a liquid’, etc? (To which of the variety of possible properties does our word refer?)

The obvious problem here is that a causal explanation alone cannot solve this problem. What is needed is a notion of a ‘kind’. We say that ‘the watery stuff’ is really a ‘watery kind’. This distinction was with us for hundreds of years - and it is that which forms the 1st premise above: and it is that which Philosophy does - the conceptual analysis part of the equation.

10.2 Rigid Designators:

Take an expression like ‘the tallest man alive’ or ‘the inventor of the bi-focals’.

Is it true of the tallest man alive in the actual world that he is the tallest man alive in all possible worlds?

Is it true of the inventor of bifocals in the actual world (Ben Franklin) that he invented bifocals in all possible worlds?

If not, the term ‘the tallest man alive’ and ‘the inventor of bifocals’ are non-rigid designators: the designate different things in each and every possible world.

In general, definite descriptions are non-rigid designators: ‘the F’ designates the F in w, and need not designate ‘the F in w\textsuperscript{1}'. But it need not be: ‘the smallest prime number’ will, in every world, designate 2, and is still a definite description.

Now - the reference of ‘water’ is fixed by the natural kind that interacts with us (it is our term by the way) - it has a kind of indexical element to it: water is that stuff that fills the watery role on earth. And that stuff is H\textsubscript{2}O, not XYZ.

This adds an important notion of reference: water denotes not just that stuff that fills the right role and stands in the right causal relations to us in the actual world, water denotes the same stuff in every possible world. And it denotes that stuff whether or not that stuff has all of those family resemblance properties associated with it, that are associated with it in the actual world.

Consider the following:

The tallest man alive might not be the tallest, if he had not eaten his wheaties.

I would be earning more now if I had not left the computer industry...

In one sense, they make little sense (at least the 1st does). What we need to make sense of sentences like this is the concept of rigidification: ‘the tallest man alive’
names a person, who might, in a possible world, not be the tallest man alive. ‘I’ in the second names me, who might, in a possible world, earn more than I do now. The implication of the subjunctive, and the use of ‘now’ signify that we are referring to the person in the actual world that answers to ‘the tallest man alive’.

11.0 Necessary a posteriori

Necessarily True = a proposition P is true iff it is true in every possible world
A priori = a statement is a priori if it is knowable without empirical research
A posteriori = a statement is a posteriori if it is knowable through empirical research.
Necessary a priori = Nothing is larger than itself, Everything is self-identical
What about ‘Water = H\textsubscript{2}O’?

If Water is rigid, it designates H\textsubscript{2}O in every world, so it is necessary that water = H\textsubscript{2}O.

But this was an empirical discovery: there was a time at which we did not know that water = H\textsubscript{2}O.

So, water = H\textsubscript{2}O is necessary a posteriori.

Why is this important? Because, if what is necessary is a priori, then it appears that one could argue in the following way: It is a posteriori that computers who have states that fill a certain functional role have a psychological life. Therefore, it is not necessarily true that computers who have states that fill a certain functional role have a psychological life. That is, computers who have states that fill a certain functional role might not have a psychological life. Therefore, the functional role of pain is not necessarily pain.

Notes:
The fact that water = H\textsubscript{2}O is a posteriori does not mean that this proposition has a different kind of necessity than, say, water = water, which is a priori. The two propositions only differ insofar as they are knowable in one way or another – not in whether they hold in any or all possible worlds.

this distinction is not the same as the essential property argument: it is an essential property of water that it is H\textsubscript{2}O. If the facts about semantics were different, ‘water’ would not be a rigid designator, and therefore, water = H\textsubscript{2}O would not be necessary. But H\textsubscript{2}O would still be an essential property of water.