Common-sense Functionalism

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7.0 Methodological Behaviourism: Chomsky’s Critique.

Chomsky’s critique appeared in an article in Language titled “A Review of B.F. Skinner’s Verbal Behavior.” In Verbal Behavior, Skinner argued that external factors consisting of present stimulation and the history of reinforcement (in particular, the frequency, arrangement, and withholding of reinforcing stimuli) are of overwhelming importance, and that the general principles revealed in laboratory studies of these phenomena provide the basis for understanding the complexities of verbal behavior. He confidently and repeatedly voices his claim to have demonstrated that the contribution of the speaker is quite trivial and elementary, and that precise prediction of verbal behaviour involves only specification of the few external factors that he has isolated experimentally with lower organisms. (Chomsky, p. 49)

Chomsky’s basic thesis is that “the elimination of the independent contribution of the speaker and learner (a result which Skinner considers of great importance) can be achieved only at the cost of eliminating all significance from the descriptive system, which then operates at a level so gross and crude that no answers are suggested to the most elementary questions.” (57)

He establishes this thesis through an analysis of the key concepts upon which Skinner basis his argument: stimulus, response, and reinforcement (deprivation is a kind of reinforcement). By collecting examples of reinforcement from the book as a whole, Chomsky shows that a person can be “reinforced though he emits no response at all, and that the reinforcing stimulus need not impinge on the reinforced person or need not event exist (it is sufficient that it be imagined or hoped for).” (p. 56) i.e. A person reads books that he likes BECAUSE he finds it reinforcing to do so. From this, Chomsky argues that reinforcement has a “purely ritual function”. (p. 56) - it is being used to cover mental terms like “X wants Y” “X likes Y” “X wishes that Y were the case”, etc.

Thus, invoking reinforcement has no explanatory force, and hence, Skinner’s claim that all verbal behavior is acquired and maintained in “strength” through reinforcement is quite empty, because his notion of reinforcement has no clear content, functioning only as a cover term for any factor, detectable or not, related to the acquisition and maintenance of verbal behaviour. Skinner’s use of the term conditioning suffers from a similar difficulty.’ (p. 57)

Second: the underdetermination argument:

A grammar of language L is a mechanism that provides an enumeration of the sentences of L in something like the way a set of rules in Logic provide an enumeration of theorems of that system.

Suppose a set grammar, and a speaker and listener who have already acquired the capacities characterized abstractly by the grammar. The speaker’s task is to select a particular compatible set of optional rules. We know, by the study of grammar, what choices are
available to him and what conditions of compatibility the choices must meet, we can proceed meaningfully to investigate the factors that lead him to make one or another choice.

The listener must determine, from an exhibited utterance, what optional rules were chosen in the construction of the utterance. It must be admitted that the ability of a human being to do this far surpasses our present understanding. The child who learns a language has in some sense constructed the grammar for himself on the basis of observation of sentences and nonsentences (i.e. corrections by the verbal community). Study of the actual observed ability of a speaker to distinguish sentences from nonsentences, detect ambiguities, et c apparently forces us to the conclusion that this grammar is of an extremely complex and abstract character, and that the young child has succeeded in carrying out what from the formal point of view at least, seems to be a remarkable type of theory construction (p. 59).

...it is not easy to accept the view that a child is capable of constructing an extremely complex mechanism for generating a set of sentences, some of which he has heard, or that an adult can instantaneously determine whether (and if so, how) a particular item is generated by this mechanism, which has many of the properties of an abstract deductive theory. Yet this appears to be a fair description of the performance of a speaker, listener, and learner. If this is correct, we can predict that a direct attempt to account for the actual behavior of speaker, listener and learner, not based on a prior understanding of the structure of grammars, will achieve very limited success. (p. 59)

e.g. “Grass does not grow on Kangaroos”, “grow does grass kangaroos not on.”

8.0 Functionalism: A definition

Mental states are, according to the functionalist, internal states within us, but we identify and name them by the effect the world has on them, the effect they have on one another, and the effect they have on the world by causing our behavior.

We identify a state without us as a mental state (e.g. pain) in terms of a characteristic functional role, and that role is usually analysed in terms of:

1. Characteristic input states
2. Characteristic internal / interaction states
3. Characteristic output states.

This is the ‘general shape’ of a theory of mind, to which all functionalists assent. But there are other things to which functionalists agree:

8.1 Mental States are those inner states that occupy or fill a functional role.

As in the last chapter: a state inside me exists. What is it, in virtue of which, that state can be correctly called a ‘pain’? It is the fact that that state was caused by bodily damage stimuli, typically causes desires to remove that stimuli, and typically causes movement away from the source of bodily damage.

8.2 But these roles can be realized or occupied by a great variety of inner states. (Multiple Realizability)

Consider some classic examples of definition via functional role: burglar alarms, thermometers, presidents, bank tellers - all of these are defined by the role they
play, not by the actual person who occupies that role at a given time. (e.g. Emily’s use of the word ‘Mommy’ appears to be a name for a functional role)
The functionalist distinguishes between the functional role, and the state that occupies that role, and identifies mental states with the former.

This is appealing for a number of reasons:
1. We ascribe mental states on the basis of behaviour, without regard to the state that fills the role - i.e. pain in octopuses
2. There is no conceptual difficulty in allowing for the possibility of mental states like pain in silicon-based aliens or robots.
3. There is good evidence from neurophysiology that which parts of our brains fill what roles is determined through use - i.e. our brains start out plastic, and become hard-wired.
4. In the case of stroke / hemispherectomy patients, other parts of the brain take over the roles played by the parts of the brain that were damaged.
5. There is no conceptual problem with the idea of prosthetic brains.

One might suggest that which functional roles count as which mental states should be left to neuro-science - but that is a bit of a problem. In the normal cases, we distinguish those functional roles that matter from those that don’t, and that is the task of conceptual analysis. So, the question that separates various versions of functionalism from one another is a question of how to specifying which functional roles matter for the identification of a mental state.

The most plausible functionalism, then, is commonsense functionalism.

8.3 Commonsense Functionalism

Commonsense functionalism holds that it is a matter of common sense which functional roles matter for a burglar alarms’ being a burglar alarm, and it is the same for mental states.

The input clauses will then contain clauses like “Bodily damage causes pain”
The output clauses will contain clauses like “Pain causes bodily movement that relieves the pain and minimizes the damage”
And the interaction clauses will contain clauses like “Pain causes desires not to have that bodily damage again.”

These clauses define the truth conditions for a particular states’ being a pain, and as such, give meaning to the term ‘pain’. Note: most of the time, these clauses are stated with an implicit Ceteris Paribus clause - and as such, they usually have a ‘typically’ before them.

According to commonsense functionalism, them, A mental state M is the state that plays the M role in the network of interconnections delivered by common knowledge about the mind.

As mentioned before, many of the concepts that will be analysed in this fashion will be cluster concepts - they are concepts which bear ‘family resemblances’ to one another. There will be clear cut cases to which the word will apply, and clear cut
cases to which it will not. But there will be a great number of cases to which they word might apply. The idea is to list the properties commonsense associates with a general category, and then say that any object that has enough of these properties falls under that concept. And what counts as ‘enough’ will vary.

8.4 The big challenge to functionalism: circularity.

Functionalism inter-defines the mental. Every mental term gets defined in terms of an interaction state, which references other mental states. Does this not get us into a logical circle? No.

The account is circular, but not viciously so. Why? Consider machine-state functionalism. A machine has two states, S1 and S2. If the machine is in S1, and it receives 50c, it goes to S2. If it receives a dollar, it emits a coke and stays in S1. If it is in S2, and it receives 50c, it emits a coke and goes to S1. If it receives a dollar, it emits a coke and 50c, and goes to S1. Thus, it is true of a certain mechanical system that it is in S1 if, that state is typically caused by receiving a dollar, typically causes a change to S2 if it only received 50c, and typically causes the output of a coke upon the receipt of a dollar.

The definition appears circular: S1 is defined in terms of S2. and S2 will be defined in terms of S1. But it is not vicious, because we could do empirical research and discover the physical state that realizes S1 in the coke machine (call it M1). Then we could replace S1 with M1 in the definition, and the circularity is removed.

Here’s a famous example:

Suppose we are in the drawing room of country house where a murder has just been committed. The detective is reconstructing the crime. (That is, he is constructing a theory of the phenomena we have just witnessed). He says:

X, Y and Z conspired to murder Mr. Body. Seventeen years ago, in the gold fields of Uganda, X was Mr. Body’s partner... Last week, Y and Z conferred in a bar in Reading... Tuesday night at 11:17, Y went to the attic and set a time bomb... Seventeen minutes later, X met Z in the bollard room and gave him the lead pipe... Just when the bomb went off in the attic, X fired three shots in to the study through the French windows...

-- Lewis, “Psychophysical and Theoretical Identifications”, p. 208

The story contains three names ‘X’, ‘Y’, and ‘Z’. We do not know what these terms mean, we have never heard them before - call them theoretical terms (because the are introduced by the theory). The rest of the terms (which we do understand) are O-terms. The T-terms do not name peculiar, theoretical, unobserved, semi-fictitious people, or ideas of people - an ideal person could not set a bomb.

Notice that the detective did not need to say ‘There exists an X, Y, and Z such that...’ If he did, it would be the Ramsey sentence analysis.

Suppose that after we listened to the story, it became clear that it was true of three people: Plum, Peacock, and Mustard. If we substitute their names for X, Y and Z, the story does not change its truth value. In this case, Plum, Peacock and Mustard realize the theory.
If we learn these facts, we would conclude that X, Y and Z were Plum, Peacock, and Mustard. - notice that it is not that there is some new property that belongs to Plum ‘being X’. It is simply that being X is one and the same as being Plum.

In telling the story, the detective set out three functional roles, and said that they were occupied by three things: X, Y and Z.

Now suppose that there was another triple that also realized X, Y and Z - i.e. Another set of three names, who we could substitute into the detective’s story and not get a falsity. Does it not seem in this case that the story did not succeed in naming anything? They were introduced as names for the occupant of a role, and if there is no one occupant, the name can’t apply. Note that this does not imply that the account is not multiply realizable: in a given situation (a possible world), it may pick out Plum, Scarlett, and Mustard, and succeed in naming.

Now, suppose a new theory, T, and T-terms t₁... tₙ. The Theory is presented in a sentence called a postulate of T. It says, of the entities named by T-terms, that they occupy certain causal roles. The postulate can be written thus:

If we replace t₁... tₙ with variables x₁... xₙ, we get:

Any n-tuple that satisfies this formula realizes T. Prefacing it with an existential qualifier:

If there is a unique realizer, we can write

If , then and if , then

These are logically equivalent to:

This is the functional definition of t.

Now, to apply this to mental states, suppose that commonsense psychology tells stories like

When someone is in X combination of mental states and receives sensory stimuli of so-and-so kind, the tends with so-and-so probability to be caused thereby to of and into Y mental states and produce so-and-so motor response.

Now, let us take all these platitudes, arrange them into a cluster, and form the postulate of the Theory of folk psychology. The names of the mental states are the T-terms in such a theory.

From the postulate, for the definitions of T terms (as the schema shows).

Then, when we learn which physical states realize each T term, we learn what kind of physical states mental states are.

8.5 Problem:

The O-terms in our detective story were all specifiable without reference to mental states. Is that true of the O-terms in the folk-psychology theory?
The output states are generally going to be actions, and actions imply intention - if we specify the O-states in terms of intentions, we have reintroduced mental states into the definition, thus reintroducing vicious circularity.

The way out of this is to characterize behaviour in relational terms - that is, in relation to the individual. Thus, signalling a taxi is a behaviour that typically results in the individual ending up in taxis. Again, this may appear circular, but it is not viciously so. Moreover, it allows for multiple Realizability, signalling a taxi may be realized by raising one’s hand or whistling, e.g.

8.6 A final note:

Lewis appears to imply that the folk psychological theory can be written out. This may well be impossible: as Jackson and Braddon-Mitchell note (55), there is a very subtle difference between pride and vanity (what about hubris?). Or about knowledge and justified true belief.

Jackson and Braddon-Mitchell suggest that a functionalist theory should take into account the tacit knowledge that is dependent on the environment or society.

E.g. most of us use grammar correctly, and may even be able to say a few things about the rules, but we generally defer to others in our language community who are greater experts than us.

I can’t tell the difference between a beech and an elm, e.g.

So, much of this context (which may well be external to me) will become involved the functional specification of which internal states count as which mental states.