that this was hard to understand. We have no clear model in our other experience, they said, for causal action of this special sort.

Notice how the Identity theory sweeps such difficulties aside. Your desire to have something to drink causes you to go to the fridge to get out a bottle of beer. On the Identity view, your purpose is (is identical with) a material process in your brain. This material process causes your body to behave in this appropriate way. Material happening causes material happening. The material happening in your brain is a particularly complex and sophisticated sort of cause, which we are still only just beginning to understand. But the causation is ordinary physical causation.

Readings and references for the Identity theory


The Causal Theory—Armstrong and Lewis

The texts for this chapter are Armstrong’s A Materialist Theory of the Mind, chapter 6, and Lewis’s “An Argument for the Identity Theory”.

The work of Armstrong and Lewis follows rather directly upon that of Place and Smart. Both Armstrong and Lewis try to meet difficulties in, and develop the position of, Place and Smart. They are often classified as Identity theorists, and this classification is correct enough, but they both put special emphasis upon causality in their account, and it is convenient to call their sort of view the Causal theory. It could also be called Causal Functionalism.

Armstrong’s starting idea (emphasized by Lewis only in his second paper) was that the restriction of the Identity theory to sensations, images, and consciousness was ill-conceived. (This point was fairly soon accepted by Smart, but never by Place.) Armstrong thought that it was not a theoretical economy to give quite different accounts of different sorts of mental phenomena. It appeared to him that a central-state account of beliefs, desires, and so on is as desirable as a central-state account the having of after-images.

Armstrong was impressed both by Objection 3, which he thought was the one to answer, and also by Smart’s reply to it by means of a topic neutral analysis. But it seemed clear that Smart’s formula would have to be revised. Although Smart did not bring out the point clearly, his topic neutral analysis was a causal one.
The Causal Theory—Armstrong and Lewis

In the new scheme, therefore, perceptions, after-images, and so on were supposed to fall under (1) as well as under (2); that is to say, besides being states apt for being produced in a certain way, they are also to be thought of as states apt for producing. In particular, perceptions are states that give a capacity for reaction back onto the world. This capacity is a capacity for selective behaviour, discriminatory behaviour. Without perception, the organism cannot operate in its environment, and for Armstrong this capacity to so operate is an essential component of perception. The capacity may not, for one reason or another, be used. But it must be there.

7.1. Dispositions once more

All this makes us think about Ryle’s dispositions again. Ryle thought that to have a certain belief, for instance, is to have a disposition to behave in a certain way, with the behaviour, if it occurs, as the manifestation of that belief. (Ryle had to face the fact that, unlike paradigm dispositions, such as brittleness, the behaviour in which a particular belief is manifested could be of many different sorts. He tried to get over this with a quite ingenious idea. Unlike single-track dispositions, such as brittleness and solubility, belief that the earth is round is a multi-track disposition. It has many different possible manifestations.)

As we have seen, for Ryle dispositions do not name inner causes (described after their effects: their manifestations). Ryle has a ‘Phenomenalist’ theory of dispositions. For a thing or a person to have a certain disposition is just the conditional truth that, in certain situations, the thing or person will behave in certain ways. But suppose we move to a Realist theory of dispositions. Suppose we think of a disposition as an inner cause, topic neutrally described by what it plays a part in bringing about. Then we can say that the dispositional theory of belief is at least getting warm.

In general, although the mind should not be identified with behaviour, it is much nearer the truth to identify it with dispositions to behave, with the dispositions conceived as inner causes.

7.2. Lewis and causal role

Armstrong’s formulae are too atomistic. They give the impression that mental states and such should be defined one by one. But in fact
behaviour, in particular, depends upon a whole battery of mental states. For instance, perception of P involves selective behaviour involving P only if we decide to engage in such behaviour. And the decision so to engage may be the resultant of all sorts of desires and calculations.

Lewis produced a most useful broadening, that was also a simplifying, formulation. He said that mental states, processes, and events are defined by their causal role. This causal role involves not merely external causes apt for producing mental states, and the behaviour that mental states are apt for producing, but also, and importantly, the causal relations that mental states within the one mind bear to one another.

In so widening the scope of the formula, Lewis brought out something important: the package-deal nature of the mental concepts. Package-deal concepts are a familiar enough phenomenon: Consider the simple examples of husband/wife and soldier/army. No husband without a wife, no wife without a husband; no soldier without an army, no army without soldiers. Such package-deal concepts apply together or not at all. Mental concepts are characteristically package-deal concepts, and the packages are the most complex and sophisticated ones that we find among our everyday concepts. (This is not surprising, because the mind is the most complex and sophisticated thing that we know to exist. Sophisticated concepts are needed for a sophisticated thing.)

I am inclined to think that there is one great central package involved in the notion of mentality. The parts of the package are the notions of purpose, perception, and belief. Here purpose is the first half of the package. It seems that purpose involves perception and, at least for the higher mammals, belief. The second half of the package is perception and belief; they involve purposes.

1. Purposes involve perception and belief. Let us consider not so much purposes but the products, the effects, of purposes: actual purposive activity. Take some simple activity like getting a beer from the fridge. It is really quite a complex affair. One has to navigate all the way to the fridge and then take appropriate action. There is no way that this long train of actions can be carried out except by a continuous perception of the developing situation, ending with the perception that the goal has been achieved. Perception has to keep the action on course every step of the way. Action may have to be modified because perception makes one aware of unexpected obstacles: say, the fridge door being unexpectedly difficult to open. No end of knowledge and belief must feed into the purpose for there to be such purposive activity, for instance, knowledge where the kitchen is, what the fridge looks like, not to mention what a bottle of beer looks like, and how you get access to the beer inside the bottle.

Perhaps in the case of simple organisms action is controlled by perception alone, without belief. But in any case, purposes, unsophisticated or sophisticated, may be said to be information-sensitive causes. It is of the essence of purposes that they get carried out by what information theorists call negative feedback, information (or misinformation) that feeds into the purpose, modifying it in such a way that, if all goes well, the purpose is achieved. So it seems plausible to say that purposive activity entails perception and, with reasonably sophisticated creatures, belief.

2. Perception and belief involve purpose. Now to argue for the less obvious connection, the link going from perceptions and beliefs to purposes. When a purpose issues in purposive activity, perceptions and beliefs about the developing situation are automatically involved. But it is perfectly possible, and regularly occurs, that we have current perceptions and beliefs that are completely irrelevant to our current purposive activity. What we can say, however, is that perceptions and beliefs are always potentially relevant to the carrying out of a purpose. You perceive that the light has turned green. If you are not driving a car, or not interested in crossing the road as a pedestrian, the green light may not affect your conduct at all. But the information is potentially relevant. If you had been driving or trying to cross the road, then the information might well have affected your conduct. Perceptions and beliefs are states that must have that sort of relevance to your conduct: relevance in suitable circumstances.

One way that this point can be brought out is by considering the difference between a proposition that you really believe and the same proposition that you merely "entertain" without giving it any belief. It is easy enough to entertain the thought that the sun will not rise tomorrow. Philosophers who think about the problem of induction spend quite a portion of their lives entertaining this thought. But they do not believe it. If they really believed it, or even if they thought there was a real chance of it, they would factor it into all sorts of deliberations and actions. That, I think, is a concep-
7.3. A new model: gene = DNA molecule

Place used as his model statement "Lightning is an electric discharge", and he said that the 'is' here is the 'is' of composition. Sensations are composed of, are constituted by, brain processes. The composition point seems fine, but his statement model fails to capture the point about causal role. Brian Medlin (another important 'Australian Materialist') made the excellent suggestion that the statement "The gene is the DNA molecule" is the sort of model that the Causal theory requires. The concept of the gene is:

1. causal
2. topic neutral
3. theoretical

Causal. Complex patterns of characteristics are observed in closely related organisms, especially in those organisms that are related as ancestor to close descendant. A causal link is hypothesized, mediated by entities called genes. A person's genes are apt for being caused by ancestral genes and are apt to bring about (cause) certain characteristics in descendants. Just as in the mental case, it is generally genes acting in complex combinations, and not atomistically, that produce the hereditary characteristics.

Topic neutral. In early genetic theory nothing was known of the intrinsic nature of the genes. They were described in a purely topic neutral way as factors that play a certain causal role. It is only relatively recently that their concrete nature, their composition, has been discovered: that they are segments of DNA at the centre of cells.

Theoretical. Here there is a difference between genes and the mental case, but one easily discounted for. Genes began as purely theoretical postulations. But, with respect to some of our own mental processes and states, we have a direct cognitive access. We are conscious of them. We will talk about the nature of consciousness in Chapter 10. In any event, this difference hardly detracts at all from the helpfulness of Medlin's model.

7.4. Some fine tuning

On the Causal theory, then, the identification of mental processes and states with brain processes and states involves two clearly separate steps:

(1) A conceptual analysis of the various sorts of mental concepts, including their interlocking. Result: a topic neutral account, with mental processes and states defined in terms of their causal role.

(2) A (contingent) identification of these processes and states with processes and states in the brain (in the central nervous system). This is defended as the best hypothesis available, given the scientific evidence.

It may be noted that Armstrong and Lewis understand the first, conceptual, step a bit differently. Lewis writes:

Our view is that the concept of pain, or indeed any other experience or mental state, is the concept of a state that occupies a certain causal role, a state with certain typical causes and effects. It is the concept of a state apt for being caused by certain stimuli and apt for causing certain behaviour. Or, better, of a state apt for being caused in certain ways by stimuli plus other mental states and apt for combining with certain other mental states to jointly cause certain behaviour. It is the concept of a system of states that together more or less realize the pattern of causal generalizations set forth in commonsense psychology. ("Mad Pain and Martian Pain")

It is the last sentence only that Armstrong finds doubtful. Lewis's idea is that we build into our mental concepts basic causal generalizations about mental states, for instance, the sorts of things that pains make us do, such as wincing and groaning. But it is unclear whether such things are really part of our concept of pain. Pain (physical pain) is a bodily sensation (bodily perception) of a particular sort. It is the bodily sensation that, in general, we dislike having more than any other. (The word 'pain' derives from the Latin poena, meaning 'punishment'.) Whether our concept of pain takes us further is doubtful. Pain might not have caused groaning,
but rather the facial movements of smiling. Yet it would not have been any the less painful. Groaning, crying out, and so on seem to be, evolutionarily speaking, devices for getting assistance, or even attempts to set up counter-irritants that will in some degree distract us from the pain. They do not seem to be part of the essence of pain.

A final note. Some contemporary philosophers seek to finesse this whole dispute about the concepts of mental processes and states by denying that step 1, the causal step in the Causal theorist’s argument, is a conceptual step at all. According to Michael Levin, all we have in the so-called conceptual step are identifying descriptions (what Russell called ‘definite descriptions’) of mental processes and states. Levin also calls them ‘Australian descriptions’. They do not give the essence of the mental. ‘The Morning star’ and ‘the Evening star’ are identifying descriptions, the first such descriptions we had of the planet Venus. They were the first ways that we had of identifying that object. But it is not a conceptual truth that Venus answers to these descriptions. It is not part of Venus’s essence. (See Levin, *Metaphysics and the Mind–Body Problem*.)

If this contention of Levin’s is correct, the Causal theory is not refuted, but its logical status is changed. It changes from being a scheme for the logical analysis of the mental concepts to an empirical theory as to how the mental happens to work.

Readings and references for the Causal theory


