

Physiological Psychology and the Mind-Body Problem 2The Materialist hypothesis and Leibniz's LawIntroduction

In [the previous lecture](#) I discussed three formulations of the mind-brain identity thesis by myself (12), Feigl (16) and Smart (15a) which appeared in the late 1950's and listed four points on which these three formulations were agreed as follows:

1. The private experiences or sensations of the individual are reducible without remainder (are nothing but) certain as yet unspecified events or processes in the brain (identity thesis).
2. The identity thesis is a contingent proposition, i.e. it is not a logically necessary truth. Descriptions of an individual's private experience do not have the same sense or meaning as the physiologist's description of the hypothetical brain processes in which the private experiences themselves in fact consist.
3. The truth of the identity thesis is at least partly a matter of empirical determination.
4. The identity thesis applies only to certain aspects of mental life - to consciousness (Place), to the raw feels of experience (Feigl) or to sensations (Smart). The cognitive and volitional (Place) or intentional (Feigl) aspects of mental life are not reducible to brain states or processes; but are (conceptually) reducible to some kind of semantic, logical, verbal or other kind of behavioural capacity or propensity.

There were also certain important differences between these three formulations one of which, the difference between my own formulation of the relation in terms of "the 'is' of composition" (12a) and the Feigl/Smart formulations (6 & 15a) in terms of the contingent identity of the referent of two logically independent descriptions, we discussed in the last lecture. We also saw in that lecture that it is a consequence of both these formulations that the putative relationship between experiences and brain activity is, for the time being at least, a contingent matter and not a logically necessary truth. On this point therefore (Point 2) there is no difference between the three formulations.

Mind-brain identity and empirical evidence

In my paper 'Is consciousness a brain process?' I argued that the thesis that consciousness is a process in the brain is "a reasonable scientific hypothesis, not to be dismissed on logical grounds alone". (12a p.44). As I saw the matter and indeed as I still see it, if, as we all agreed the proposition 'experiences are processes in the brain' is a contingent proposition and not a necessary truth and if moreover, it is a true contingent proposition, since a true contingent proposition is one which can be denied without self-contradiction or without contradicting certain self-evident premisses from which it is deduced, it would seem to follow that the only grounds we can have for asserting it to be true must be the evidence of scientific observation. However since the empirical evidence in favour of such a view though impressive, is not yet by any means conclusive, we cannot yet regard the identity thesis as a matter of established scientific fact. Hence the description of it as a scientific hypothesis.

In his paper Smart (15a) argued that this contention of mine "is partly right and partly wrong. If the issue is between (say) a brain-process and a heart thesis, or a liver thesis, or a kidney thesis, then the issue is a purely empirical one, and the verdict is overwhelming in favour of the brain. The right sort of things don't go on in the heart, liver or kidney nor do these organs possess the right sort of complexity of structure. On the other hand, if the issue is between a brain-or-heart-or-liver-or-kidney thesis (that is, some form of materialism) on the one hand and epiphenomenalism on the other hand, then the issue is not an empirical one. For there is no conceivable experiment which could decide between materialism and

epiphenomenalism." (15a p.155). Smart then goes on to suggest that the only way to settle the issue as between materialism and epiphenomenalism is by appealing, as Boring (2) had done before him, to "the principles of parsimony and simplicity", in other words, to Ockham's razor, by which principle needless to say, materialism wins hands down, since it not only reduces the number of separate entities which have to be postulated in order to account for the mind-brain relationship by half, it also removes the necessity of having to postulate a unique set of entities existing outside the three dimensionally extended spatial universe of science and commonsense, standing in a highly problematical causal relationship with events in that universe.

In my rejoinder to Smart's paper which appeared in Philosophical Review in 1960 under the title 'Materialism as a scientific hypothesis' (12b) I argued that "there are certain logical conditions which must be satisfied to enable us to say that a process or event observed in one way is the same process or event as that observed in (or inferred from) another set of observations made under quite different conditions" (12b p.101). Having repeated and expanded the account of what I took to be these logical conditions in my earlier paper (12a), I continued: "For the purposes of the present argument it does not matter whether this account of the logical criteria used to establish the identity of an event described in terms of two procedures of observation is correct or not. What is important is that there must be some logical criteria which we use in deciding whether two sets of correlated observations refer to the same event or to two separate but causally related events. The problem of deciding what these criteria are is a logical problem which cannot be decided by experiment in any ordinary sense of the term; and since we cannot be certain that the criteria are satisfied in the case of sensations and brain processes unless we know what the criteria are, the issue is to that extent a philosophical issue. Moreover, even if we agree on the nature of these logical criteria, it is still open to the philosopher to question the logical propriety of applying them in the case of sensations and brain processes.

"For the sake of argument, however, let us assume that these philosophical issues have been settled and that they have been settled in favour of the materialist hypothesis. We now find ourselves faced with a purely empirical issue, namely, whether there is in fact a physiological process, be it in the brain, the heart, the liver, the kidney or the big toe, which satisfies the logical criteria required to establish its identity with the sensation process. As it happens, we already know quite enough to be quite sure that, if there is such a process, it must be situated in the brain, and even within the brain there are extensive areas that can be ruled out with virtual certainty as possible loci of consciousness - areas for example, where brain lesions produce motor disturbances without any change in consciousness other than an awareness of the disability itself and emotional reactions to the problems it creates. But the empirical problem is not, as Smart seems to think, simply a matter of determining the precise anatomical location of this physiological process. It is still an open question whether there is, even in this relatively circumscribed area, a process which satisfies the logical criteria required to establish its identity with the sensation process. Even assuming that we know what these criteria are and are satisfied that they are applicable in this case, we cannot regard the question as finally settled until a process satisfying the necessary criteria has been discovered or until we are sure that we know enough about the brain to be certain that no such process exists." (12b, pp. 102-3).

The only additional point which I would now want to add to this part of the argument is that just as there must be logical criteria for deciding whether we are dealing with two sets of observations of one and the same process or event or with two sets of observations of two separate but correlated events, so also there must be logical criteria for deciding in the second case whether the two independent but correlated processes and events are causally connected and if so, in which direction the causal relationship operates. Given that we can agree as to what these criteria are or should be, it would seem to follow that empirical evidence is relevant not only in deciding the issue as between materialism and dualism, but also assuming that the materialist solution can be excluded in deciding the issue as between interactionism, epiphenomenalism and psycho-physical parallelism.

### The logical criteria of identity

In the light of these considerations it is evident that the crucial issue that must be decided before we can proceed to look for a process in the brain which must be plausibly identified with the conscious experiences described and reported by the human subject, is the nature of the logical criteria which we use and are justified in using in deciding whether two independent sets of observations are observations of two different sets of correlated events or of one and the same process or event. This is an issue which can be approached in two different ways. One approach, which is one usually favoured by logicians and philosophers is to argue a priori from the nature of the notion of identity itself, as defined in terms of Leibniz's Principle of the Identity of Indiscernibles (10). The other approach which is the one I have been inclined to adopt in the past is to argue empirically or inductively from examples of other cases where we accept two independent sets of observations as observations of the same event or process, as compared with cases where we treat the two sets of observations as implying the existence of two separate, but correlated events or processes.

#### A priori argument from Leibniz's Principle

Leibniz's principle of the Identity of Indiscernibles holds that if all the predicates that are true of an entity A are also true of what is taken to be another entity B and all the predicates that are true of B are also true of A, then A and B are not two things but one and the same thing. As applied to the case of experiences and brain processes what this principle means is that if we were to discover a brain process which had all the properties which the introspecting subject attributes to his current experience and had no properties which the introspecting subject was not prepared to acknowledge as being true of his current experience, we would be forced to conclude that the experience and the brain process are one and the same thing. In practice of course, no such brain process has yet been discovered. Furthermore, we already know enough about brain processes to be quite certain that no such brain process ever will be discovered. For although it is in my view both conceivable and probable that we shall eventually discover a brain process which has all the properties which the introspecting subject attributes to his experience, there are a number of properties which apply to all brain processes which the introspecting subject would never think of predicating of his experiences solely on the basis of his having or experiencing them. One such property is the property of involving the firing of at least one and probably many thousands of neurons each of which has a specific location within the anatomical structure of the brain.

Now the fact that any brain process which is capable of being studied by the neurophysiologist necessarily has a number of properties which the introspecting subject would never think of predicating of his experiences is not enough to show that the experience and the brain process are two different things and not one and the same thing. For there is no reason why an experience should not be supposed to have properties which its owner does not know that it has. What it does mean however, is that we can never hope to use the indiscernibility of what is observed under the two sets of conditions as an argument for their being one and the same thing. That is why Leibniz's principle of the Identity of Indiscernibles has been appealed to far more often in arguments against the mind-brain identity theory than in arguments in its favour.

#### Objections to the identity theory from Leibniz's Law

In using Leibniz's Principle of the Identity of Indiscernibles in formulating objections to the mind-brain identity theory an appeal is made to the converse of Leibniz's principle, the principle usually referred to as Leibniz's Law. Leibniz's Law, as distinct from the Principle of the Identity of Indiscernibles from which it derives, holds that if two descriptions A and B refer to one and the same entity, then any predicate which forms a true proposition when predicated of A must also form a true proposition when predicated of B. In order to generate an objection to the mind-brain identity theory based on Leibniz's Law in this sense, what has to be shown is, either that there are predicates which form true propositions when predicated of experiences which form false propositions when predicated of brain processes, or that there are predicates which form true propositions when predicated of the brain processes whose occurrence is correlated with

reports of experiences which form false propositions when predicated of the experiences themselves.

Now since the relevant brain processes have not yet been identified, even tentatively, we are not in a position to use the empirical evidence to show that the experiences have properties which the brain processes do not have and vice versa. Those who have put forward this kind of objection to the identity theory have therefore, looked not for predicates which are true of the one which are as a matter of fact false of the other, but for predicates which are true of the one which are necessarily false when applied to the other by virtue of some logical contradiction which allegedly arises when a predicate that is true of an experience is predicated of a brain process or when a predicate that is true of brain processes is predicated of an experience. As I have already pointed out, it is not sufficient to show merely that these experiences have properties which we would not think of predicated of brain processes if we did not suspect them of being one and the same thing, or that brain processes have properties which we would never think of predicating of experiences, if we did not suppose them to be one and the same. For the fact that something is not known to have a given property is no evidence that it does not have that property. It might of course, be argued that it is a peculiar and distinctive feature of experiences that they can only have these properties which their owner knows that they have; but it is only necessary to think of the case of the pain which has the property of being caused by some internal lesion whose nature and existence is entirely unknown to the sufferer to refute that suggestion.

Nor is it enough to show that it sounds odd or unnatural to say, for example of an experience that it consists of the firing of several million neurons in the cerebral cortex or of a brain process that it has a roundish reddish look. It is true, as I pointed out in discussing the entailment test in [Lecture 9](#), that we often use the oddness or unnaturalness of combining a given subject term with a given predicate as prima facie evidence of a logical contradiction between the two terms. Such evidence however, is far from conclusive. All it shows is that the sentence in question is not one that we normally have occasion to utter. This may be because of a logical contradiction between the subject and predicate terms; but it may also be that the apparent incongruity is due to nothing more than our unfamiliarity with the notion that two things which have long been assumed to be different are in fact one and the same. If this is the only reason and if the identification becomes accepted as a useful scientific assumption, we may confidently predict that such locutions as those which attribute to experiences those predicates which belong primarily to the brain processes with which they have been identified will come to seem very much less incongruous in the future than they do now. At one time, it must have appeared very odd and incongruous in terms of our ordinary ways of talking to speak of light as consisting of waves and of differences of colour in terms of the differences in wave length of the light emitted from or reflected by the object in question, though now such conceptions are so familiar to us that they require no justification.

This explanation of the incongruity of some of the things we should be compelled by Leibniz's Law to say, if the identity hypothesis is accepted, can only be applied however, in the case of those predicates of the brain processes which are applied to experiences by virtue of the acceptance of the identity hypothesis. We cannot explain and resolve incongruities which arise when we apply the predicates of experience to the brain processes in this way. The reason for this is related to the asymmetry in the identity relation between the two terms in such cases which we discussed in [the last lecture](#) in relation to the formulation of the relationship in terms of micro-reductive composition rather than identity. We saw in the last lecture that in these micro-reductive scientific identifications the relationship is asymmetrical even in the case where the form as well as the matter is included in the micro-reductive account, in that the scientific micro-reduction explains the description that is given at the pre-scientific macroscopic level and not vice versa. This means that, whereas the micro-description, if it is to provide as it must do, a complete explanation of the macro-description, must mention all the properties mentioned in the macro-description, it must also if it is to provide a genuine explanation, mention properties of the entity or process in question which are not mentioned in macro-description. Consequently there will be properties attributed to the common referent under its macro-description by virtue of its newly discovered micro-description whose predication of the macro-description will initially appear incongruous solely by virtue of

unfamiliarity. On the other hand, any incongruity between the micro-description and the predicates applied it by virtue of their application to the common referent under its macro-description must prima facie be interpreted as a failure of the micro-description to provide an adequate account of the entity to which the macro-description refers. We could only conclude from such a failure that the micro-reductive account, so far given is incorrect and hence, in the case of some property of experience that remains obstinately incongruous when predicated of any currently conceivable variety of brain process that such an experience cannot be any kind of currently conceivable brain process.

However, when we examine those cases where there is an alleged logical incongruity or contradiction involved in predicating of a brain process some property of an experience, it turns out either that the property in question is a phenomenal property whose 'topic neutral' character, as we described it in [Lecture 19](#), has not been appreciated, or that it is an intentional or non-Shakespearian property such as we discussed in [Lecture 9](#) which applies to things only under one description and not under any and every description which is true of the entity in question and whose application to the common referent of two descriptions under both of them is not therefore required by Leibniz's Law.

The principles outlined above can be illustrated by reference to three cases of alleged infringements of Leibniz's Law to which the critics of the Mind- Brain Identity Theory have drawn special attention. These are: (1) the phenomenal properties of experience, particularly their colour properties, (2) the necessarily private character of conscious experiences and (3) the lack of any clear cut spatial location in the case of private experiences.

### Phenomenal Properties

The argument from the phenomenal properties of experience may be stated as follows: experiences have phenomenal properties such as the property of being green, red, blue or yellow. It makes no sense to describe a brain process as green, red, blue or yellow. Hence experiences have properties (phenomenal properties like being of a certain colour) which no brain process can have. Hence by Leibniz's Law experiences cannot be the same thing as brain processes.

As I argued in my 1956 paper (12a), this argument breaks down because it ignores what Smart (15a) has called the 'topic neutral' character of the descriptions that we give our own private experiences. I have already discussed the reasons for thinking that descriptions of private experience, not only are, but necessarily must be topic neutral in character in [Lecture 19](#). All that remains to be pointed out in this connection is that if and in so far as our descriptions of our own experience are topic neutral in this sense, it follows that when we describe an experience such as an after image as green, we are not predicating the property of greenness to the experience itself, we are saying only that the experience is the sort of experience we normally have when we look at objects or perceptible phenomena which do have the property of being green. In other words visual experiences do not have the property of being literally green any more than brain processes have this property. Leibniz's Law is not infringed.

It is true of course, that visual experiences do have a property which you may call if you wish 'phenomenal greenness' or the 'phenomenal property of greenness', which is the property of the experience which we describe by saying either that there is something in the external visual environment that looks green or that it looks as if there were something literally green in the external visual environment. But it is not this kind of phenomenal greenness that we cannot predicate of brain processes. What brain processes cannot be is literally green, green in the sense that grass or traffic lights are green. If however, all we mean when we say that some visual experiences are phenomenally green is that they are the kind of experiences that normally occur when we are visually presented with objects and light sources which are literally green and which enable us to recognise literal greenness as a property of such objects and light sources under normal conditions of illumination, then to say that an experience is phenomenally green is to say nothing about it which could not equally well be said of those brain processes in the visual cortex which enable us to discriminate between different coloured objects in the field of view.

This argument presupposes of course, that colour words like 'red', 'green', 'blue' and 'yellow' when

used literally, refer to physical properties of objects and phenomena in the external physical world and are not, as has been traditionally supposed, the names of certain properties of the individual's subjective visual experience. That this presupposition is correct as an account of how we use colour in ordinary language is clearly shown by the fact that it is objects like leaves and blades of grass that we describe as green, not the experience we have when we look at such objects, by the fact that grass ceases to be green only when it withers and dies, not when the level of illumination is too low for its greenness to be seen, and by the fact that we draw a distinction between the colour that an object actually or really is and the colour it appears to be under abnormal conditions of illumination.

Despite these obvious linguistic facts the belief that colour properties are what Galileo (8) and Locke (11) called secondary qualities which, like 'beauty', are 'in the eye of the beholder' rather than in or on the surface of the object itself is very deep rooted not only amongst philosophers but also amongst physicists and physiologists who are concerned with the phenomena of light and colour discrimination. This prejudice has led Smart to devise a version of the topic neutral formula which will eliminate all reference to colour properties from descriptions of experience so that, instead of saying of a yellow after image that it is the sort of experience we normally have when looking at a patch of paint or patch of light that is really and literally yellow, we have to say "what goes on in me is like what goes on in me when a lemon is in front of my eyes" (15c p. 91). As M. C. Bradley has pointed out (4), this use of the topic neutral formula to eliminate all reference to colour properties leads to a vicious circle. In my view it also brings the thesis of the topic neutrality of sensation reports, as I presented in [Lecture 19](#) into disrepute by presenting it, not as a plausible analysis of reports of experience as they occur in ordinary language, but as a sophisticated device for eliminating properties which cannot readily be fitted into a physicalist universe.

As I see the matter, this attempt to eliminate colour concepts from our vocabulary is wholly unnecessary and indeed, undesirable from the standpoint of the mind-brain identity theory. Colours in my view are straight forward physical properties of the exposed opaque surfaces of material objects, of the whole body of objects that are translucent or which are themselves light sources. Colour concepts are conceptually irreducible in that we cannot further define what it means to say of something that it is red, green, blue or yellow. We can only explain what it means by pointing to examples. However in the light of modern physical theory, we now know that colour properties consist in (i.e. are reducible by, what I have called in [Lecture 4](#), substantial or micro-analysis to) the property of selectively reflecting, transmitting or emitting light radiation within a particular band of wave lengths. It is true that the particular range of wave lengths which we use in discriminating objects of different colours is determined, somewhat arbitrarily from a physical point of view, by the sensitivity of human retina. It is also true that the classification of the visible spectrum in terms of our various colour words is determined by the physiology of the colour reception processes in the retina, rather than by any objective physical boundaries along the continuum of light wave lengths within the spectrum. The rather fuzzy boundary between red and orange which we see when we look at an actual band of spectrally diffracted light is where it is and is experienced as a boundary of this kind only by virtue of the physiology of our visual discriminatory apparatus. But this does not mean that there is no actual boundary between red and orange light at this point. Given that red light is (in a contingent identity or composition sense of 'is') light of a wave length of between  $0.72\mu$  and  $0.63\mu$  and that orange light is similarly light of between  $0.63\mu$  and  $0.59\mu$ , there both necessarily and actually is a boundary between these two ranges of light wave lengths at a wave length of about  $0.63\mu$  which is the wave length of the spectrally diffracted light at the point where it changes from red to orange. If the physiology of the normal human eye were different, we would not observe a boundary at this point, nor would we have the particular set of colour concepts that we do have. But if by some miracle the physiology of every normal human retina were suddenly changed so that everything which used to look red now looked green, it would not suddenly become true that everything that used to be red is now green. In terms of our present set of colour concepts, it is true, has always been true and always will be true, whatever happens in the future to the human eye, that the leaves of all currently existing varieties of living grass are green. If everyone suddenly became red-green colour blind, no one would any longer be able to distinguish

between these two forms of light or between otherwise identical objects differing only with respect to the light of these two ranges of wave lengths which they selectively reflect without using complex instruments to measure the light wave lengths involved. Under these conditions the distinction between red and green would, no doubt drop out of our ordinary colour vocabulary; but in terms of our present vocabulary, grass would still be green and blood would still be red. The fact that there would no longer be any point in saying this would not make it any the less a true proposition.

### The Privacy of Private Experience

The argument from the necessary privacy of private experiences was put forward as an objection to the mind-brain identity theory in a paper by Kurt Baier in the Australasian Journal of Philosophy in 1962 (1). The argument may be stated briefly as follows. It is a defining property of private experiences that they are private in the sense that the owner of such an experience has what Baier calls 'Final epistemological authority' with respect to the nature and occurrence of his own experiences. He may make a mistake in his description of his own experience, but only he can correct such a mistake. The owner of a private experience has a way of coming to know what his experiences are which is "not open to others". The nature and occurrence of his brain processes, on the other hand, while not a matter of straightforward public inspection, can be ascertained if anything, more readily by another person than by their owner. Thus private experiences have a property, namely that of being known privately, which brain processes do not have, while brain processes have a property, namely that of being publicly ascertainable which does not apply in the case of private experiences. Hence by Leibniz's Law, the two cannot be one and the same thing.

For some years I have been uncertain as to how this objection should be dealt with. Smart's reply to Baier (15b) which focusses on the problem of the alleged incorrigibility of sensation reports and on the issue of what we would have to say in a case where the individual honestly reports the occurrence of an experience for which no counterpart in the brain can be discovered, does not meet the objection when stated as, I have stated it, as an infringement of Leibniz's Law. In a paper published in 1967 (12c) I tried to argue that the objection can be met by treating the privacy of experiences as the lack of a property - public observability or ascertainability - which belongs to brain processes, rather than as a positive property of experiences. This would then enable me to account for the presence of this property in the case of brain processes and its absence in the case of experiences in terms of the principle of the asymmetry of the composition relation which allows the micro-description of an entity to have properties which would not be ascribed to it on the basis of the macro-description but not vice versa. However this resolution of the problem no longer appears to me satisfactory, since it is clear that the special kind of introspective knowledge that we have of our own experiences is a positive property of them and not merely a matter of their not being available to public inspection.

The solution that I now favour is based on the recognition that privacy is a matter of how we come to know about our experiences and that 'knowing' is an 'intentional predicate' in that it takes what Geach (8) has called a 'non-Shakespearian' object. Now as we saw in [Lecture 8](#), it is the defining characteristic of an intentional or non-Shakespearian object in Geach's sense that it is a description or proper name for which we cannot legitimately substitute another name or description by virtue of an identity statement. Thus whereas in the Shakespearian case if Joe hits James and James is the brother of John, it follows that Joe hits the brother of John, in the non-Shakespearian case if Joe knows that James has red hair and James is the brother of John, it does not follow that Joe knows that John's brother has red hair. This follows only if Joe also knows that James is the brother of John.

Now since the object of an intentional verb is only an object of the verb under the description and not under other descriptions that may be true of the object in question, it follows as Borst (3) has pointed out that the property of being known, believed, wanted or looked for by someone is a property which the very same thing under another description need not possess; and hence that Leibniz's Law is not infringed, if the same thing is known, believed, wanted or looked for under one description, not under another

description. Borst recognises the application of this argument in meeting such objections to the mind-brain identity theory as the objection that pain sensations cannot be brain processes, because many people who have never heard of the brain and its processes, know that they have pains when they do. What he does not point out however, is its application in the case of the privacy of sensations. The reason for this perhaps, is that what is at issue in the case of privacy is not what a man knows about his experience as compared with what he knows about his brain processes, but how he comes to know what he knows in the two cases. This difference may make the application of the principle of non-Shakespearianity less obvious in the case of privacy; but it does not in my view invalidate it. If, as I do, I know what my experiences are in a way no one else does, it not only does not but does not need to follow from the fact that my experiences are brain processes that I know what some of my brain processes are in a way that no one else does.

### The Spatial Location of Experiences

The phenomenal properties of experience are properties of experience which allegedly cannot be properties of brain processes. The privacy of private experience is a case where experiences and brain processes each have a property which the other does not have, that of coming to be known about in two radically different ways. Spatial location and extension by contrast is a property which has a literal application in the case of all brain processes whereas, so the argument runs, spatial location and extension apply to private experiences in so far as they apply to them at all, only in a metaphorical sense. Hence by Leibniz's Law experiences and brain processes cannot be one and the same thing.

The first point that needs to be made in answering this objection is that the fact that we do not ordinarily locate our private experiences within our brains is no evidence that they are not in fact so located. For as we have seen, any micro-reductive account of an entity or phenomenon must necessarily attribute to the entity or phenomenon properties which the macro-description does not ascribe to it. Moreover, since 'knowing' is an intentional verb taking a non-Shakespearian object, the fact that we do not ordinarily know that our experiences are physically located within our brains, cannot be used as evidence that the two are not one and the same. What has to be shown is, either that experiences are not in the brain because they are somewhere else, or that experiences are not the kind of thing to which it makes sense to ascribe spatial location and extension.

The argument that some private experiences at least, are not in the brain because they are somewhere else, gets some purchase in the case of the sensations that we feel in the various parts of the body together with such things as the ringing that we hear in our ears or the spots that we see before our eyes. But as Descartes realised, the phenomenon of the phantom limb, where sensations are felt in a part of the body that is no longer there to be felt in, shows quite clearly that this kind of spatial location is not a literal spatial location. It is simply a device for indicating the part of the body in which the stimulus which is exciting the sensation in question appears to be located. To say that I feel a pain or a tingle in my left toe does not entail that there actually is anything unusual going on in my toe, let alone that the sensation is actually going on there. Consequently, although it is misleading and confusing to say that the pain in my toe is literally in my head, there is no genuine contradiction between these two predicates. Nor do we need to say that because we now know that the sensation is actually in our brains, we were wrong in supposing it to be in the toe. As I see it, it is true of such a sensation both that it is in the toe and that it is in the brain. There is no contradiction between these assertions any more than there is a contradiction involved in saying that she went home in a taxi and a flood of tears. Such sentences sound odd only because they involve a juxta position of the preposition 'in' when it is functioning in two different ways.

The doctrine that spatial location and extension has no application in the case of the mental has been almost universally accepted by philosophers since it was first put forward by Descartes (5). But as we saw in [Lecture 16](#), Descartes' argument for this view depends upon his contention that the mind is a substance or independently existing thing. Descartes' argument is that the mind cannot be a spatially extended substance because it cannot be chopped up into bits in the way that all spatially extended



substances can be chopped up, leaving a set of separate bits behind each of which is a spatially extended substance in its own right. This argument is conclusive however, only if we accept Descartes' premise that the mind is substance. Once we abandon the notion that the mind is a substance, as I argued we need to do in [Lecture 16](#), and replace it with the notion of the mind as a system of interacting processes, events and states, we can happily agree with Descartes that the mind is not a spatially extended substance, but not because it is not extended, but because it is not a substance. Biological processes like the circulation of the blood are extended and located in space, but they cannot be chopped into bits each of which continues to exist as a process in its own right. One can cut off the blood supply from a part of the body and the blood will continue to circulate in the remainder; but once it is separated from the main system circulation inevitably ceases in the part that has been cut off.

Descartes' argument is not however, the only consideration that has helped to persuade philosophers of the truth of his contention that the mental cannot be said to be spatially extended and located. For there is undoubtedly something very odd about the suggestion that mental states like knowing, believing, wanting or intending are spatially extended or located. Why this should be is readily understood if, as I have said we should, we accept a Rylean (14) hypothetical analysis of these mental dispositions. If what we are talking about, when we describe someone as knowing, believing, wanting or intending something, is not about anything that he is doing now or about anything that is currently the case, but only about what he would say and do if certain contingencies were to arise, we are not talking about anything which can be assigned any kind of spatial location, since the events we are talking about are hypothetical events which have not yet happened and may indeed never happen. Furthermore, if they do happen, they may happen in a large number of different places according to whether the individual happens to be at the time and, since they may consist in a variety of overt acts of moving, manipulating and vocalising they cannot be sensibly located in any one part of the body.

If therefore, Descartes' thesis is understood as a thesis about mental dispositions, it is clear that he is quite right in claiming that such states are neither spatially located nor spatially extended. But the mind-brain identity theory in the form in which it was put forward by Feigl (6), Smart (15a) and myself (12a) was not intended, as we saw in [the last lecture](#), to cover mental states. Its application was confined to the purely covert aspects of mental processes and in the case of Feigl and Smart to the raw or uninterpreted aspects of private experience. Smart indeed confined his argument solely to sensations: Now experiences and sensations as we have seen, are processes, things that involve continuous change which is extended over time. Moreover a process, in contrast to a dispositioned state, is the kind of thing which cannot be said to exist or to be going on unless it is going on somewhere. To say that something is not going on anywhere is tantamount to saying that it isn't going on at all. But since experiences in the relevant sense are clearly processes, it follows not merely that it makes perfectly good sense to assign them to a specific spatial location, but also that it makes no sense to assert that an experience is occurring, unless it is occurring somewhere. It is true that we cannot assign our experiences to any very specific location on the basis of introspective observation apart from the observation that visual experiences seem to take place somewhere behind our eyes and that the auditory experiences appear to happen somewhere in the head between the two ears. But apart from the confusion due to the two idioms of spatial location in the case of bodily sensations, there is nothing about our experiences, as we describe them from an introspective standpoint, which is inconsistent with the suggestion that they occur in whatever part of the brain the corresponding brain processes occur. Moreover it is arguable that the mind-brain identity hypothesis is the only theory which is capable of making sense of the logical fact that experiences are processes. For it is only on this theory that experiences can be given the precise spatial location which I would argue, they must have in order to make sense of the assertion that they actually occur.

#### The Disappearance form of the Identity Theory

As I see it, no one has yet shown that, apart from intentional non-Shakespearian predicates which do not transfer anyway, there are any predicates which apply to experiences which are logically inappropriate

when applied to brain processes or that there are any predicates of brain processes which are logically inappropriate when applied to experiences. If this is so, it follows that the mind-brain identity thesis has not yet been refuted and probably never will be refuted by showing that it infringes Leibniz's Law in this respect. However some recent advocates of the mind-brain identity theory, notably Paul Feyerabend (7) and Richard Rorty (13), have been more impressed than I am with the argument that we cannot assert a straightforward identity between experiences and brain processes, because these infringements of Leibniz's Law are unavoidable. The solution proposed by Feyerabend and Rorty is to adopt what Rorty calls the disappearance form of the mind-brain identity theory according to which it is accepted that there are or may be predicates which we ordinarily apply to our experiences in ordinary discourse which are such that they cannot with logical propriety be predicated of the corresponding brain processes. It is argued however, that where such logical contradictions occur, instead of giving up the view that all we are dealing with in such cases are processes in the brain, what we ought rather to give up is the assumption that the propositions we ordinarily assert about our experience in the language of common sense are literally true. What we need to recognise, according to this view, is that our ordinary psychological concepts are grossly distorted in a variety of ways by outmoded pre-scientific mythological notions and therefore cannot be trusted to provide us with an accurate account of those aspects of brain activity which we are trying to characterise when we report our private experiences.

On this view there is no point in trying to establish identities of reference between particular expressions in the mental language and expressions in the brain language, because the mental language, unlike the brain language, systematically fails to refer coherently to anything that actually exists. Such language can be confidently expected to disappear once our knowledge of the brain and its activity is sufficiently advanced to permit its replacement by the brain language.

I find this disappearance version of the identity theory both unnecessary, since I do not accept any of the alleged infringements of Leibniz's Law, and mistaken in so far as it implies the impossibility of framing genuinely true propositions in terms of the psychological concepts of ordinary language. It will not have escaped those who have followed this course of lectures that there is no thesis to which I am personally more deeply committed than to the belief in the value and significance of the psychological concepts of ordinary language for scientific as well as for the purposes of every day life. I would much rather abandon the mind/brain identity theory than retain it at the expense of abandoning this principle.

### References

1. K. Baier 'Smart on Sensations', Australasian Journal of Philosophy 1962, X: 57-68.
2. E. G. Boring The Physical Dimensions of Consciousness, New York, Century 1933.
3. C. V. Borst The Mind/Brain Identity Theory, London, Macmillan 1970, Introduction.
4. M. C. Bradley (a) 'Sensations, Brain Processes and Colours' Australasian Journal of Philosophy 1963, XLI, 385-393.  
(b) 'Critical Notice of Smart's Philosophy and Scientific Realism', Australasian Journal of Philosophy 1964, XLII, 262-83.
5. R. Descartes Meditations, VI
6. H. Feigl 'The "Mental" and the "Physical"' in H. Feigl, M. Scriven and G. Maxwell, eds., Minnesota Studies in the Philosophy of Science, II, Minneapolis, University of Minnesota Press, 1958, pp.370-497.
7. P. Feyerabend 'Materialism and the Mind-Body Problem', Review of Metaphysics, 1963, XVII, 49-66.
8. Galileo Galilei Il Saggiatore, Question 48.
9. P. T. Geach Logic Matters, Oxford, Blackwell 1972, pp 139 ff.
10. G. W. F. von Leibniz see The Philosophy of Leibniz, London, Allen & Unwin 1900, B.

- Russell Chapter V.
11. J. Locke Essay Concerning the Human Understanding, Bk II, Ch. 8.
  12. U. T. Place
    - (a) '[Is consciousness a brain process?](#)' Brit. J. Psychol. 1956, 47, 44-50.
    - (b) '[Materialism as a scientific hypothesis](#)', Philos. Rev. 1960, LXIX, 101-4.
    - (c) '[Psychological Predicates](#)', in W. H. Capitan and D. D. Merrill, eds. Art, Mind and Religion, Pittsburgh, University of Pittsburgh Press 1967, pp. 55-68.
  13. R. Rorty 'Mind-Body Identity, Privacy and Categories', Review of Metaphysics, 1965, XIX 24-54.
  14. G. Ryle The Concept of Mind, London, Hutchinson 1949
  15. J.J. C. Smart
    - (a) 'Sensations and Brain Processes', Philos. Rev., 1959 LXVIII, 141-56.
    - (b) 'Brain Processes and Incorrigeability', Australasian Journal of Philosophy, 1962 XL, 68-70.
    - (c) 'Comments on the papers' in C. F. Presley ed. The Identity Theory of Mind, St. Lucia, University of Queensland Press 1967, pp. 84-93.