

THE MIND-BODY PROBLEM AND QUINE'S REPUDIATION THEORY

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ABSTRACT: Most scholars who presently deal with the Mind-Body problem consider themselves monist materialists. Nevertheless, many of them also assume that there exist (in some sense of existence) mental entities. But since these two positions do not harmonize quite well, the literature is full of discussions about how to reconcile the positions. In this paper, I will defend a materialist theory that avoids all these problems by completely rejecting the existence of mental entities. This is Quine's repudiation theory. According to the theory, there are no mental entities, and the behavioral or physiological phenomena that have been attributed to mental entities, or that point to the existence of these entities, are exclusively caused by physiological factors. To be sure, several objections have been raised to materialist theories that do not assign some role to mental entities. But we will see that Quine is able to give convincing replies to these objections.

Key words: materialism, mentalism, mental terms, verbal behavior, folk psychology.

Most scholars who presently deal with the Mind-Body problem consider themselves monist materialists. Nevertheless, many of them also assume that there exist (in some sense of existence) mental entities (factors, events, states, causes, phenomena, properties, etc.). Some think that these mental entities are supervenient on physiological entities, others that they are reducible to physiological entities, and others that they are nonreducible. There also are some further views. But I will not discuss here the different positions, since I want to defend a materialist theory that completely rejects the existence of mental entities—that assigns no positive role at all to them. This is Quine's repudiation theory (RT). According to RT, there exist no mental entities, and the behavioral or physiological phenomena that have been attributed to mental entities, or that point to the existence of mental entities, are exclusively caused by physiological factors. To be sure, several objections have been raised to materialist theories that do not assign some role to mental entities. But we will see that Quine is able to give convincing replies to these objections.

The main conclusion of this paper: Since Quine's RT is probably correct, there is no reason for introducing mental entities. It follows that the discussion of issues such as supervenience, reductionism, or nonreductionism is a waste of time. There exist no entities that are supervenient on, or reducible to, or nonreducible to, physiological entities. Similarly, we don't have to concern ourselves with

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questions such as finding a place for mental or phenomenal properties (see, e.g., Chalmers, 1996).

But first a terminological issue. Some people may decide that, even in their scientific discourse, they use the term “mental” in order to refer to certain types of physiological entities. But because many people understand “mental” as referring to entities that are not strictly physiological, this terminology may become misleading. For the sake of clarity, therefore, I will use the term “physiological” in order to refer to entities that are strictly physiological—that is, to entities for which issues such as supervenience, reductionism, or nonreductionism do not arise—and I will use the term “mental” in order to refer to entities for which issues such as supervenience or reductionism do arise. Further, I will use the term “mentalist theories” for the theories that assume the existence of, or give some role to, mental entities, and the term “mentalists” for the scholars who accept mentalist theories.

There are other materialist theories besides RT that assign no positive role to mental entities, such as the eliminativist positions of the Churchlands (see, e.g., Churchland & Churchland, 1998). But I will restrict myself to RT, and in so far as the other theories are similar to RT, the present conclusions also apply to them. (But see below Quine’s views on the positive role of folk-psychology, which seem to point to a difference between Quine and the Churchlands.)

A somewhat different materialist position is the so-called identity theory, which identifies mental entities with physiological ones. This position, which has been pioneered by Place (1956) and Feigl (1958), is philosophically sound.¹ But as Quine has observed, the theory may encourage all kinds of mentalist speculations:

We can imagine someone appealing to the identity theory to excuse his own free and uncritical recourse to mentalistic semantics. We can imagine him pleading that it is after all just a matter of physiology, even if no one knows quite how . . . the repudiation theory has the virtue, over the identity theory, of precluding it. (Quine, 1975, p. 95)

To be sure, Quine acknowledges that people make successful use of mentalist language. But we will see that RT is able to account for this use, including for so-called first-person reports of mental events.

Another problem for the identity theory is that since it admits mental entities, questions can be raised about the status of these entities, about the nature of their relation with behavioral phenomena, with physiological phenomena, about the location of these entities, etc. (See, e.g., the lengthy and frequently frustrating discussions with mentalists in Hocutt, 1967; Place, 1956, 1988; Smart, 1959,

¹ Another prominent defender of the identity theory is Smart (e.g., 1959, 1963). Smart explicitly acknowledges the pioneering role of Place in the formulation of this theory (Smart, 1963, p. 91). As for me, I remember many fruitful conversations I had with Ullin Place when we met at some of the ABA conventions and his constructive criticisms of my presentations at these conventions. (See also his discussion of one of my papers on language acquisition [Place, 1989], and my reply [Stemmer, 1989b]). Since Ullin Place would surely have agreed with the materialist position defended in this paper, I dedicate this paper to his memory.

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1963.) All these problems are avoided in Quine's RT. For this reason, I will restrict my analysis to RT.

Objections and Replies

There are two main types of objections to RT (or to eliminativist theories):

1. There are evidential data that cannot be explained by RT.
2. Assigning a positive role to mental entities has heuristic advantages. It enables us to give better explanations of certain behavioral and physiological phenomena. These advantages are lost by RT.

Heuristic Advantages

Let me begin with the second objection. One of the clearest formulations of Quine's reply to this objection is given in the following passage of his *Word and Object*:

. . . if a certain organization of theory is achieved by thus positing distinctive mental states and events behind physical behavior, surely as much organization could be achieved by positing merely certain correlative physiological states and events instead. Nor need we spot special centers in the body for these seizures; physical states of the undivided organism will serve, whatever their finer physiology. Lack of a detailed physiological explanation of the states is scarcely an objection to acknowledging them as states of human bodies, when we reflect that those who posit the mental states and events have no detail of appropriate mechanisms to offer nor, what with their mind-body problem, prospects of any. (1960, p. 264)

Quine's proposal clearly serves its purpose. All the heuristic advantages that can be achieved by assigning some role to mental entities can be achieved by assigning the same role to correlative physiological entities, even if we presently ignore "their finer physiology." Consequently, the repudiation of mental entities does not imply the loss of heuristic advantages. Moreover, a central effect of adopting Quine's strategy is that RT turns out to be simpler than the corresponding materialist mentalist theories. The latter assumes not only the physiological entities of RT but also mental ones. RT is therefore simpler, because it assumes the existence of fewer entities. Since accepting RT does not imply a loss in heuristic advantages, and since RT is simpler than corresponding materialist mentalist theories, usual criteria of theory evaluation recommend the adoption of RT, provided we can show that it accounts for the available evidence. I now turn to this issue.

Qualitative States

A favorite objection to repudiationist (or eliminativist) theories is the supposed existence of qualia. Suppose little Tom has been hit by a stone. He starts crying and rubs his leg. A popular way of explaining the episode is to assume that

being hit by the stone elicits the mental or qualitative state of pain, and this mental state then gives origin to Tom's behavior.

Here RT has an easy task. According to RT, and I think that most materialists will agree, the hitting of the stone initiates certain physiological processes in Tom's body. These processes usually have further effects including behavioral effects. And among the latter effects are those described above. That is, the hitting of the stone elicits, via a series of physiological processes, a set of behavioral effects including the crying and the rubbing of the leg. It follows that a strictly physiological treatment accounts for all the evidential data, and the attribution of some or all of these data to additional entities—the qualitative states—is therefore superfluous. As Quine says, "The bodily states exist anyway, why add the others?" (Quine, 1960, p. 264). Notice also that even though Tom's behavior is elicited by a physiological process—the physiological effects of being hit by the stone—Tom does not have to know anything about physiology in order to perform the behavior. (I will later make use of this rather trivial conclusion.)

To make Quine's reply even more convincing, let me introduce another example, one that will also be helpful for a later issue. Suppose we observe a paramecium and we notice that, on encountering a warm stream, the paramecium deviates from its regular course (see, e.g., Curtis, 1968). Again, we, and I suppose that mentalists, too, will conclude that the effect of the warm stream on the paramecium is exclusively physiological and that the change in the paramecium's behavior derives exclusively from, that is, is elicited by, the physiological effect. The assumption that in addition to being in the physiological state caused by the warm stream the paramecium is also in a mental or qualitative state of warmness (or is conscious of having a "feeling" of warmness) is superfluous. No additional data are being explained by such an assumption. Consequently, RT accounts for the paramecium's behavior just as it accounts for Tom's behavior even though the behaviors might suggest the existence of mental entities.

The Reference of Mental Terms

Another popular objection to RT is based on conclusions from verbal behavior. Suppose that after being hit by the stone, Tom not only cries and rubs his leg but also utters the English sentence "I am in pain." Here, the claim is that since Tom has no physiological knowledge, he cannot be referring to a physiological entity with the word "pain." Consequently, so goes the claim, when Tom utters "I am in pain," he must be using some mental entity, for example, a sensation, as his reference of "pain."

But a closer look at the evidence shows the invalidity of the objection. What are we actually observing? Our observation consists of Tom emitting a verbal response after being hit by the stone; he utters a string of sounds. But just as Tom's nonverbal responses, the verbal response is one of the behavioral effects of the physiological processes initiated by the hitting of the stone, and just as in the case of the nonverbal responses, emitting the string of sounds does not require Tom to have physiological knowledge. The utterance "I am in pain" is elicited by the

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physiological effects of being hit by the stone, and no mental factors have to be introduced for explaining Tom's behavior.

Still, the following argument could be raised. Why did the physiological processes elicit an utterance that contains precisely the word "pain" and not some other word? Doesn't this suggest the intervention of a further factor, perhaps a mental factor? But these questions do not affect RT. Quine's analysis of the learning and production of verbal behavior allows us to account for Tom's utterance of "I am in pain" within the austere framework of RT. There is no need to introduce mental factors. The following is a highly simplified version of a Quinean account.

Suppose that two-year-old Tom has never heard the word "pain." He now suffers from appendicitis, and his parents ask him questions such as, "Are you in pain?" or, "Where do you have pain." These *ostensive* pairing experiences—hearing an utterance of "[Are you in] pain" paired with the stimulation by the inflamed appendix—have specific physiological effects: they leave a neural trace (Quine, 1974, pp. 24-27; for experimental evidence for the formation of neural or physiological traces by exposure to certain pairing experiences, see, e.g., Byrne, 1987; Hawkins & Kandel, 1984). As a consequence, when this trace is afterwards activated by stimuli that are *perceptually similar* to the stimulations of the inflamed appendix, such as by the hitting of a stone or by an infected tooth, Tom may utter the English word "pain," that is, the word he heard in the ostensive experiences. That is, via a series of physiological processes, the hitting by the stone elicits this particular verbal response from Tom, and there is no need to assume the intervention of mental factors. Moreover, the response is elicited by the physiological processes even though Tom has never learned anything about physiology. (For a precise characterization of the notion of perceptual similarity, see Quine, 1974, pp. 16-20; sometimes Quine speaks of quality spaces instead of standards of perceptual similarity.)

Instead of saying that expressions such as "pain" refer to a mental entity, people often speak of the expression *reporting* such entities. For example, Malcolm (1984) states that:

A human subject of a psychological experiment will say various things: e.g., "The light seems brighter now," "I am beginning to feel slightly faint," etc. These utterances are reports, not of the subject's behaviour, but of his sensations. So the subject's *sensations*, not just his verbal behaviour, become part of the data of the experiment. (p. 41)

But this conclusion is unjustified, for the sensations are not part of the data. The scientist who performs the experiment does not see or hear sensations. The actual data, the evidential data, are the observed responses, in particular, the utterances, the sounds, produced by the subject. And, as usual, we account for the production of these responses by attributing them to the physiological effects of the experiment, including the activation of the relevant "linguistic" traces that were left when the subject learned English. For example, certain luminous stimuli may activate the neural trace that was left when the subject learned the word "light,"

and this activation then elicits the word “light” within the sentence “The light seems brighter now.” To be sure, the utterances may give us indirect information about the neural traces that are being activated, and this information may then also tell us something about the external stimuli that probably participated in the activation of the traces. But there is no reason for assuming that the utterance also tells us something about additional, mental, factors. The physiological account explains all the evidence.

Altruism

The parents’ responses to Tom’s nonverbal behavior often show altruistic characteristics. Whether these responses derive from innate behavior mechanisms (see, e.g., Dawkins, 1976) or whether they are (also) determined by the neural traces left by certain experiences is irrelevant for our purpose. In any case, the responses are elicited, via a set of physiological processes, by the parents’ observation of Tom’s behavior. Consequently, the parents’ altruistic behavior is accounted for by RT. (See also below the discussion of the predictive success of folk psychology.)

Listener Behavior

If the parents respond not only to Tom’s nonverbal behavior but also to his utterance of “I am in pain,” then the parents’ behavior is a typical instance of listener behavior. Hearing the sentence activates certain “linguistic” traces in the parents’ physiological system—the neural traces that were left when they learned English. And this activation process, together with other physiological factors, then elicits the listener behavior.

Still, the following question could be raised. Why are the parents’ listener responses to Tom’s utterance usually “correct”? Or, more generally, why is verbal behavior—listener and speaker behavior—frequently correct, relative to the circumstances? This is an important issue, and Quine has extensively dealt with it. But since the issue is not directly related to our topic, let me only mention that the frequent correctness derives mainly from the strong species-specific uniformity of a number of critical features of the physiological mechanisms by which people process their linguistic experiences, in particular, and restricting ourselves to ostensive learning, from the species-specific uniformity of our evolutionary selected standards of perceptual similarity and salience (see, e.g., Quine, 1960, 1969, 1974, 1990, 1996; Stemmer, 1973, 1983, 1989c).

To give an example. Suppose Tom has learned the word “horse” by being exposed to the ostensive pairing of an utterance of “[This is a] horse” with the sight of a (salient) horse. The ostensive experience, or a couple of such experiences, often has behavioral effects including verbal effects. For example, when Tom afterwards sees an object that for him is perceptually similar to the horse, and somebody asks him, “What is this?” Tom may correctly utter the word “horse” (see, e.g., Nelson & Bonvillian, 1978; Quine, 1960, 1974; Ross, Nelson, Wetstone, & Tanouye, 1986).

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Quine's theory now accounts for the correctness of Tom's verbal response in the following way. Very briefly, the ostensive pairing event leaves a neural trace. Afterwards, when this trace is activated by the hearing of "What is this?" and by the sight of an object that, for Tom, is perceptually similar to the object he saw during the ostensive event (i.e., the horse), Tom emits the word he heard in the event: the word "horse." Now, because of the strong species-specific uniformity of human standards of perceptual similarity, the range of objects that elicit the response "horse" from Tom (i.e., the objects that for Tom are perceptually similar to the original horse) is usually very close to the range of objects to which other people "apply" the word "horse" (i.e., the objects that for them are perceptually similar to a horse). This therefore ensures the frequent correctness of Tom's verbal behavior. As Quine says:

[ostensive learning] is a curiously comfortable case of induction, a game of change with loaded dice. At any rate, this is so if, as seems plausible, each man's spacing of qualities is enough like his neighbor's. (1969, p. 125)

Moreover, the strong species-specific uniformity of human standards of salience often ensures that what was salient for Tom during the ostensive experience—the object horse and the word "horse"—was also salient for the parents. This uniformity also contributes to the correctness of Tom's verbal responses.

Other "Mental" Terms

We saw earlier how Quine's physiological theory of language acquisition accounts for the learning of words such as "pain." Similar accounts hold for the learning of other "mental" terms. For example, Tom can ostensibly learn the correct use of the word "wants" by hearing an utterance of "Fido wants to go to the yard," while observing an appropriate event such as Fido scratching the door, a behavior that in the past preceded Fido's running into the yard. Such an ostensive event will leave a neural trace (if Tom indeed learns the word "wants" on this occasion), and this trace may then be activated by perceptually similar events, giving origin to correct behavior including correct utterances in which the word "wants" occurs. For example, Tom may afterwards say, "Billy wants the bottle," when observing events that are perceptually similar (for him) to the nonverbal component of the ostensive event.

Notice that Tom's correct use of "wants" does not require him to have any knowledge of the physiological processes that generate Fido's or Billy's behavior. Tom's verbal behavior derives from the learning mechanisms that process his observations, especially from the mechanisms that generate his similarity based inductive generalizations, the generalizations that enable him among others, (1) to expect Fido or Billy to behave similarly (perceptually) under similar circumstances, and (2) to expect hearing (similar) utterances of "wants" under similar circumstances. Admittedly, learning the correct use of "wants" requires all kinds of previous experiences plus the activation of many traces that were left on these occasions, in particular, of the traces that were left when Tom previously

observed the regularity of Fido's and Billy's behavior. But even mentalists admit that Tom's correct use of the word "wants" requires the active intervention of such physiological processes. And in view of the billions of neural connections that can be formed in human brains, this physicalist account of Tom's ability to use "wants" within appropriate verbal and nonverbal contexts is clearly physically possible. Moreover, not only must materialist mentalists also give us a complex physiological account of Tom's ability, but the introduction of additional factors, the mental factors, will certainly not reduce the complexity of their account. We can therefore conclude that there is no need to introduce mental entities in order to account for Tom's use of "wants." (The present analysis of the learning of the so-called intentional term "wants" may throw light on the general problem of how intentional terms enter our vocabulary. The analysis therefore complements Leigland's comments on this topic, 1998. See also below the section on anomalous monism.)

Learning words such as "being conscious" is probably still more complex. But since people must *learn* to use such words, they must undergo experiences that leave appropriate neural traces in their system. Again, these traces may then be activated by perceptually similar events, thus generating relatively correct responses. (On further aspects of the learning of "mental" terms, see also Quine, 1985, p. 6-7, where he examines the learning of terms such as "joy" and "anxiety.")

At this stage, the mentalist readers have probably lost their patience. They do admit that complex physiological processes, and complex applications of learning mechanisms, stand behind the use of mental expressions, but the topic becomes too complicated for their philosophical interests. They prefer to take a mentalist shortcut. Quine expresses this reaction when dealing with the complex problems one faces when trying to establish the relation between standing sentences (i.e., sentences whose truth value remains fixed over long periods) and the stimuli that might elicit such sentences. His comment: "One sees how a semanticist might despair and seek shelter in the jungle of mentalistic semantics" (Quine, 1975, p. 89). But unless we are willing to take recourse to "free and uncritical . . . mentalistic semantics" (p. 95), which includes among others accepting postulates that assume the existence of superfluous mental entities, entities that do not account for additional data, the scientific method leaves us no choice but to carefully consider all relevant factors and all relevant processes. There is no shortcut.

Quine's repudiation theory, thus, does not promise us an easy life. But this was actually to be expected in view of the extremely complex character of human behavior and especially of our verbal behavior with its complex semantic and syntactic rules. But difficulty of task does not invalidate a theory.

Consciousness and What it is Like to be a Bat

In daily talk, we often attribute states of consciousness to living beings. Thus we may say that Fido, who has just broken one of his legs and now emits typical

pain-behavior, is conscious of a pain, while after he has received a strong sedative that completely eliminates the typical behavior, we would say that he is no longer conscious of the pain. But from a scientific point of view, we will attribute the difference between the two types of behavior to a physical difference between physiological states, and we will reject the assumption that in the former case Fido is not only in a physiological state p but, in addition, also in a mental, perhaps nonphysical, "conscious" state c . Such an "additionalist" assumption would not account for more data than the physiological assumption.

To be sure, humans, who already have learned a language, may utter sentences such as "I am conscious of my pain" in such circumstances. But just as in other instances of verbal behavior, RT can account for the behavior by attributing it to the activation of the neural traces that were left when the speaker learned English.

What is it like to be a paramecium who has just met a warm stream (cf. Nagel, 1974)? Normal scientific considerations suggest that the scientific answer to this question is to describe as best as possible the physiological state of such paramecia. A speculative description of the nature of possible additional (or supervenient, or reducible, etc.) mental states of consciousness is unlikely to advance our scientific knowledge.

Similar conclusions hold for the question: What is it like to be a dog who has just broken one of his legs? We can only describe as best as possible the physiological states of such dogs. And we may perhaps expand our answer by also investigating whether there is a physical similarity between such states and the physiological states of other organisms under certain circumstances, for example, of children who just ate a candy or of paramecia who met a warm stream. As scientists, this is the maximum we can do.

Again, humans may also emit verbal behavior under such circumstances, for example, they may say, "I like candies." But we already have made clear that such behavior does not require the introduction of mental factors. The data are covered by Quine's RT.

Anomalous Monism and Folk Psychology

Let us return to the events, in which Tom learns the use of the word "wants." He has previously observed that when Fido scratches the door and somebody opens the door, Fido runs into the yard. As a consequence, and with the help of an inductive generalization based on perceptual similarity, Tom will usually acquire the expectation that, under similar circumstances, Fido will again run into the yard. That is, Tom will be able to predict Fido's behavior in these circumstances. Afterwards, Tom can then ostensibly learn the correct use of "wants" if, for example, he hears his parents saying, "Fido wants to go into the yard," while Fido is scratching the door. This ostensive learning process is also an inductive generalization based on perceptual similarity. And as I mentioned earlier, the frequent correctness of the learning process derives from the fact that the process is "a curiously comfortable case of induction" (Quine, 1969, p. 125).

Concentrating on the expectation that Tom has inductively acquired by observing Fido's behavior, we have here the beginnings of a folk-psychology theory, a theory that enables Tom to predict, and often with quite remarkable accuracy, Fido's future behavior. Of course, it is possible that Tom's inductive generalization is wrong. But since the generalization derives from Tom's evolutionarily selected, and therefore well adapted, standards of perceptual similarity, it is likely that the generalization will frequently be correct. Fido will indeed often run into the yard if somebody opens the door, while he is scratching the door. (On the role of evolutionarily selected standards of similarity in ensuring the frequent correctness of our inductive generalizations see, e.g., Quine, 1969; Stemmer, 1971, 1978, 1983.)

We also have here the beginnings of what Davidson has called anomalous monism (1980). According to RT, and mentalists will probably agree, Fido's behavior is entirely determined by his physiological constitution. Nevertheless, Tom does much better at predicting Fido's behavior than any neurophysiologist is presently able to do. And this also holds for Tom's predictions regarding Billy's reactions to the milk bottle.

Once Tom has learned the use of "wants," he will be able to apply the word to Fido's and Billy's behavior, for example, by saying, "Fido wants to go to the yard" and, "Billy wants the bottle." Now, Tom uses the word "wants" (within a verbal context) when he observes something that, for him, is perceptually similar to what he observed when learning the word, namely, the particular aspect that is shared by Fido's and Billy's behavior—the aspect that enables him to generalize from the ostensive learning event to other events. It is unlikely, however, that there is a strong physical similarity between the physiological events that take place in Fido and Billy. The neural process that gives origin to Fido's "desire" to run into the yard is probably quite different from the neural process that gives origin to Billy's wanting his bottle. But Tom's use of the word "wants" ignores these neural differences, since the inductive generalization that stands behind Tom's use of the word is based on a perceptually similar aspect of the *behaviors*.

Moreover, except for the common aspect, there is often a great diversity between the behaviors that elicit the word "wants" from Tom, as is already shown by Fido's and Billy's behavior. And it is this diversity, together with the neural differences between the behaving organisms, which makes it unlikely that we will soon be able to formulate scientific laws which connect neural events with corresponding behavioral events. That is, we have to conform ourselves with Davidson's anomalous monism.

Quine (1985) examines this issue in more details. He first points out that mental terms are learned "on the strength of behavioral signs" and are "applied in the light of publicly observable symptoms: bodily symptoms strictly of bodily states" (p. 5-6). But there,

. . . is no presumption that the mentalistic idioms would in general be translatable into the anatomical and biochemical terminology of neurology, even if all details of the neurological mechanisms were understood. (p. 6)

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Quine then considers ascriptions of belief. These ascriptions are based on the observation of behavior such as “searching or fleeing or standing expectantly,” which can serve as manifestations of one or another belief, and he notes that, “these manifestations vary drastically and systematically with the content of the belief to be ascribed” (p. 7). Therefore, the

. . . empirical content of ascriptions of belief is thus heterogeneous in the extreme, and the physiological mechanisms involved are no less so. The heterogeneity is cloaked under a linguistic uniformity: the connective “believes that” followed by a subordinate sentence. The other idioms of propositional attitude have the same disarmingly uniform structure as the belief idiom, and it cloaks much the same heterogeneity in respect of empirical evidence and neural mechanism. (p. 7)

Quine concludes that because of this heterogeneity, we, “must take the best of what Davidson has called anomalous monism” (p. 7).

A final word on the important role of folk psychology in our life. Although, as Quine observes, “the physiological is the deepest and most ambitious” level of our explanations of behavior, we must presently settle for the “behavioral level” on which our folk psychology is based (1975, p. 87). And although the behavioral level does not give folk psychology the precision that we may eventually obtain once we will be able to explain behavior with the help of physiological laws, the conclusion that folk psychology is a “stagnant or degenerating research program” (Churchland, 1981, p. 75) seems to be unjustified. As Quine says, the explanation of many behavioral phenomena indeed requires us to settle for the behavioral level. And as said earlier, the frequent success of our folk-psychology predictions derives from the adaptive value of the learning mechanisms with which we process our behavioral observations. Even Fido’s predictions of his owner’s behavior are frequently accurate. The reason: they too derive from well-adapted learning mechanisms (see also Stemmer, 1993, 1995).

Theoretical Terms

I have mentioned above Quine’s proposal for dealing with theoretical terms that apparently refer to mental entities. He proposes to posit correlative physiological states and events instead, thus completely avoiding superfluous discussions about the supervenience, reducibility, or nonreducibility of the mental entities.

But Quine also has a second program. Whenever possible, he tries to reduce the degree of theoreticity of the theoretical terms. For example, in order to account for certain semantic phenomena, Carnap introduced the intensional notion of “meaning” where this notion is supposed to be a mental term (see, e.g., Carnap, 1956a). Now, in order to account for the semantic phenomena, Quine can adopt the method of merely positing physiological states and events that are correlative to Carnap’s “mental” meanings. But since these physiological entities would have a quite high degree of theoreticity, Quine tries to show how one might build up a

notion of meaning by starting with notions that have a lower degree of theoreticity, such as the notion of the affirmative stimulus meaning of sentence S, which is defined (roughly) as the class of stimuli that elicit assent to S (see, Quine 1960, pp. 32-36).

Quine adopts a similar approach when trying to account for the logic of belief sentences. He examines a series of alternatives such as to adopt eternal sentences as objects of the propositional attitudes (1960, pp. 211-221), although his preferred solution is to treat the term “believe” as part of an operator “believes that” (p. 216). Again, these alternatives are supposed to have a rather low degree of theoreticity.

It is likely that other theoretical notions used in psychology cannot be easily derived from low level theoretical notions. But what is important is that even these notions are theoretical notions of a physiological, that is, ultimately *physical*, framework, the framework that accounts for the relevant data. These theoretical notions, like the physical notion of force, are directly or indirectly linked to observational statements (see, e.g., Quine, 1953, pp. 42-46; see also Carnap’s discussion of correspondence rules that connect, directly or indirectly, theoretical with observational notions, e.g., Carnap, 1956b, 1966). Now, the exact relation between theoretical and observational notions is still being discussed, but what is important for our topic is that, just as in the case of the notion of force, we are dealing with a relation between observational entities and theoretical physical entities. There is no reason for treating the latter entities as mental entities.

Ostensive Definition

In a paper on the relation between the experiential and the nonexperiential, Strawson (1994) distinguishes between experiential phenomena, which include such phenomena as consciousness, and nonexperiential phenomena, which are those dealt with in current physics. Since the experiential phenomena correspond to what others, and Strawson himself, call mental phenomena, it will be instructive to analyze his argument for accepting the reality of these phenomena. Strawson thinks that ostensive definition can achieve this:

Personalized ostensive definition will do: one says to each reader, “You know what it is like from your own case, as you burn your finger, listen to Beethoven, give birth, and so on.” (p. 83)

According to Strawson, hearing the above sentence is supposed to convince the listener of the reality of experiential, that is, mental, phenomena. But by now, we already know how RT deals with such arguments. According to RT (and materialist mentalists will probably agree), hearing the sentence has several physiological effects on the listeners. Now, in those cases where the listeners have learned English, that is, where their organisms contain the neural traces left when they underwent the relevant learning experiences, the physiological effects usually include the activation of these neural traces (including those that are located in my body if I am one of the English speaking listeners). This activation then has further physiological effects including perhaps effects that may elicit verbal responses

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such as “I remember the pain in my finger” or “I know I have inner experiences.” But whatever the effects of the ostensive definition, they are all accounted for by a physiological account, and the introduction of mental elements in this story is superfluous; it does not increase the number of data that are being accounted for. Consequently, Strawson’s ostensive definition argument does not establish the reality of mental events.

Some Further Arguments

There also are other arguments that have been raised against RT. For example, Pargetter (1984) thinks that the hypothesis of other minds is justified because it is the conclusion of an inference to the best explanation. But as I have shown in Stemmer (1987), the argument is invalid because eliminativist theories give a simpler and therefore better explanation of the relevant evidence.

A further argument in favor of mentalist theories is Jackson’s so-called argument of knowledge (1982, 1986), which is supposed to justify the theories. But by treating items of knowledge as physiological brain structures, the relevant phenomena can be accounted for in the usual manner by eliminativist theories (see, Stemmer, 1989a). There is no need for adding mentalist assumptions. (Churchland, 1985, also intends to solve the knowledge argument. But Jackson, 1986, shows that Churchland’s solution is inadequate.)

Finally, a word on the principle of simplicity. We have seen that RT makes a crucial use of the principle, since it relies on the principle in order to dismiss the assumption that, in addition to the physiological factors that give origin to certain verbal and nonverbal phenomena, there also are mental entities that play some role in these phenomena (or that just exist). It could be argued, however, that since the principle is a methodological one, it should not be used for arriving at ontological conclusions. This issue has been thoroughly discussed by Smart (1963), and he gives several examples, which show that we indeed apply the principle for deciding ontological issues. He considers, for example, the hypothesis that the world began ten minutes ago just as it was ten minutes ago. Smart then observes that,

. . . though there are no possible observations or experiments which could distinguish between this hypothesis and the more usual one, there are considerations, hard though they may be to formulate, of simplicity and plausibility, which should determine us to reject the “ten minutes ago” hypothesis. (p. 10)

Another example discussed by Smart is the possibility of explaining cell growth by attributing it to certain biochemical reactions. If we are able to give such a biochemical explanation then, “there is [clearly] no need to postulate in addition to the biochemical reactions which we know to occur anyway, a life force or some irreducibly biological law of nature” (p. 11).

Perhaps one of the most well known examples of the application of the principle of simplicity for deciding ontological issues is the replacement of

Ptolemaic astronomy by the ontologically different Copernican astronomy. This replacement was not based on empirical evidence but on considerations of simplicity—on the application of Occam’s razor.

Conclusions

Quine’s RT goes against the intuitions of many people. But if we adopt the methodological position of preferring the simplest theory that accounts for the available data, then we have to overcome our prejudices. For RT accounts for the relevant data and is also simpler than presently known alternative theories. This therefore justifies the adoption of RT.

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