

Token- Versus Type-Identity Physicalism

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Abstract: *The observation that identity is a relation between two names or descriptions which refer to the same individual (token-identity) or the same kind or class of things (type-identity) suggests that, unless the descriptions in question are specified, physicalism, understood as the claim that every mentally specified state or process is identical with some physically specified state or process, is empty hand-waving. It can be argued on behalf of the type-identity physicalist that future psycho-physiological research will allow us to specify which types of mentally-specified states or processes are identical with which physically-specified states or processes. No such possibility can be envisaged if token-identity physicalism (Davidson 1970/1980) is true. Consequently, the case for token-identity physicalism must rest on an a priori argument. But the argument which Davidson offers is inconclusive. Token-identity physicalism is, therefore, in serious danger of being side-lined, should evidence supporting the stronger type-identity thesis be forthcoming.*

In order to think clearly in philosophy one must constantly bear in mind the distinction between talking *de re* about the things themselves and talking *de dicto* about the language we use to talk about them. Thinking in terms of the symbolism of formal logic, can often lead us astray in this respect. An example where formal logic leads us to treat what is really *de re* as *de dicto* is the widespread assumption that all conditionals including causal counterfactuals are to be analyzed according to the formula 'If p then q'. The effect of this is to convert what is in fact a specification of the *de re* conditions governing the occurrence of an event or the existence of a state of affairs into what Ryle (1949) calls an "inference license" or "inference ticket" which talks *de dicto* about the conditions under which one statement or proposition q can be inferred, namely if another statement or proposition p is true.¹

Another case where formal symbolism leads us astray but in the opposite direction is to be found in Lynne Rudder Baker's (1997) paper "Constitution is not identity", Baker takes it as axiomatic that an identity relation is one that conforms to the formula 'a = a' and concludes quite rightly that by this criterion the relation between an entity and its constitution of which the proposed identity relation between consciousness and the brain process or complex of brain processes in which it consists is a prime example.

Identity Statements Are Metalinguistic

The reason for this is that a statement that conforms to the formula $a = a$ is a *de re* statement about the number of items in two groups, whereas a statement asserting the identity of an object or process with its constitution or makeup is a *de dicto* statement which asserts that two descriptions which differ in sense (Frege's 1892/1960, *Sinn*) nevertheless refer to (Frege's *bedeuten*) the same object. Suppose I have four and only four coins in my left hand trouser pocket and four and only four coins in my right hand trouser pockets. In this case the number of coins in both pockets is the same. The formula $a = a$ is satisfied. But that equality is not identity. It is numerical equality.

'His Table Is an Old Packing Case' as a de dicto Identity Statement

Though I didn't call it that (I spoke, having at that time read no Frege, of the "is' of composition"), I gave as an example of what I have since come to recognize as a true identity relation, the case where a man's table is in fact nothing more than an old packing case (Place 1956 pp. 45-6). It should be evident that in this case what we have are two descriptions which differ in sense, but which refer to one and the same object. Describing an object as a table describes its function, as something that one can write on and eat off. Describing something as a packing case mentions its former and intended function; but in the present context it indicates that the object, one which, if the case is large enough and strong enough, allows it to be used as a table when inverted. Here there is nothing that satisfies the formula 'a = a.' On the other hand the example exactly parallels the example of the Morning Star and the Evening Star which Frege (1892) uses to introduce the sense (*Sinn*) and reference (*Bedeutung*) distinction.

The Token-/Type-Identity Distinction

This brings us to the main topic of this paper, the distinction between token and type identity. For both "His table is an old packing case" and "The Morning Star is the same object as the Evening Star" are cases of token identity, cases where two descriptions with different senses *just happen* to apply to one and the same particular object. Such cases are extremely common. Indeed any non-analytic proposition which asserts the co-application of two conceptually unconnected predicates of the same object is of this kind. But so are all those which apply in the case of an aggregated collection of objects, such as the coins in my pocket which all happen to be copper. But the target case, in my paper the claim that consciousness is a process in the brain, is not like this. Hence we have two *types* of thing, consciousness and a certain as yet unspecified type of brain activity, which *don't just happen* to satisfy two descriptions, but which are such that the features which lead us to apply the one description also leads us to apply the other, and where the absence of the same features would in all cases lead us to withdraw both. This, in other words, is a typical case of type- rather than token-identity. But whereas the typical token-identity statement "His table is an old packing case", if true, is contingent and synthetic, the typical type-identity statement of which "Water is H₂O" is a paradigm case is necessary and analytic. Why should this be?

4. Explaining why type-identities are typically analytic

Though I didn't then speak of the 'is' in "Is consciousness a brain process?" as an 'is' of identity, while the terms 'token-' and 'type-identity' had not then been introduced, I did attempt to answer this question in the passage in my 1956 paper which the introduction of the "His table is an old packing case" example. However, in its original form this passage is not at all clearly expressed. I had an opportunity recently to correct this deficiency in an as yet unpublished paper which I presented at a one-day conference celebrating 40 years of Australian Materialism held at the University of Leeds in June 1997. Fortunately the revisions which I proposed in that paper have since been incorporated in the version of the 1956 paper which appears in the second and in other respects, much revised edition of W. G. Lycan's *Mind and Cognition* (1999). In its revised form the passage in question now reads as follows:

There is ... an important difference between the table/packing case and the consciousness/brain process case in that the statement "his table is an old packing case" is a particular proposition which refers only to one particular case, whereas the statement "consciousness is a process in the brain" is a general or universal proposition applying to all

states of consciousness whatever. It is fairly clear, I think, that if we lived in a world in which all tables without exception were packing cases, the concepts of “table” and “packing case” in our language would not have their present logically independent status. In such a world a table would be a species of packing case in much the same way that red is a species of color. It seems to be a rule of language that *whenever it becomes generally accepted that every member of a class of objects or states of affairs which is identified by its possessing one characteristic also possesses another characteristic which is identified in a way that is logically independent from the way the first characteristic is identified, a statement asserting the inherence in an object or state of affairs of the first characteristic will come to entail a statement asserting the inherence in that object or state of affairs of the second characteristic.* If this rule admitted of no exception it would follow *from the fact that it is not self-contradictory to imagine the existence of an object or state of affairs which possesses the one characteristic without possessing the other that it is empirically possible for the two characteristics to occur independently.* It is because this rule applies almost universally, I suggest, that we are normally justified in arguing from the logical independence of two expressions to the ontological independence of the states of affairs to which they refer. This would explain both the undoubted force of the argument that consciousness and brain processes must be independent entities because the expressions used to refer to them are logically independent and, in general, the curious phenomenon whereby questions about the furniture of the universe are often fought and not infrequently decided merely on a point of logic. (Place 1956, p. 46; Lycan 1999, pp. 15-16 - changed wording in italics)

Stated in terms of the token-/type-identity distinction, what I am claiming in this passage is that, whereas token identity statements are typically synthetic and, if true, contingently so, type-identity statements are typically analytic and, in so far as their denial is self-contradictory, necessarily true. The reason for this is that predicates that are co-extensive or where the extension of the one includes the extension of the other a conceptual connection develops between the two. The only exceptions to this rule are cases where the extensional equivalence or overlap is not a matter of common observation, where the observations on the basis of which the predicates are assigned are widely separated in time and space.

One such case is the case where the predicates water and H₂O are found to be co-extensive. Here the observations on the basis of which we describe a sample as a case of water and the observations on the basis of which we describe it as H₂O are widely separated. Nevertheless the fact that the predicates have the same extension (given one or two qualifications such as the inclusion of ice and steam in the concept of water) is so well established and so widely known that “Water is H₂O” has become an analytic and, by the criterion of what it is self-contradictory to deny, a necessary truth. That this conceptual connection has developed is shown by the observation that in cases of doubt a chemical test showing that a sample has the chemical composition H₂O takes precedence over all other criteria in showing that it is in fact water.

A similar outcome is to be expected in the case of consciousness and the particular as yet to be identified pattern of brain activity in which presumably it consists. As things stand the existence of such a pattern of brain activity is, as I argued in 1956, a hypothesis which will be confirmed or disconfirmed by future neuropsychological research. If, as seems increasingly probable, such research establishes both the existence and nature of the pattern of brain activity in which consciousness consists, and these results become widely known, the development of a similar analytic and necessary connection between the two is to be expected.

The Token-Type Distinction in Anomalous Monism

It goes almost without saying that this is a very different account of the semantic relation involved in type-identity statements such as "Water is H₂O" from the account in terms of the concept of rigid designation given by Kripke (1972/1980) and Putnam (1987). It also implies a very different approach to the issue between token- and type-identity physicalism from that represented by Donald Davidson's (1970/1980) "anomalous monism." Anomalous monism or token-identity physicalism has two features in common with what, if you will forgive me, I shall refer to henceforth as "the classical theory", the theory I presented in my 1956 paper. They both in their different ways emphasize the token- /type-identity distinction, and they are both reductionist theories, in the sense they both collapse all mental states and processes into either brain states or brain processes or in the case of the classical theory into dispositions to talk and behave in a variety of overt and covert ways. There, however, the similarity ends.

Perhaps the most fundamental difference between anomalous monism and the classical theory concerns the assumption which Davidson takes for granted "that there is a categorical difference between the mental and the physical" (Davidson 1980, p. 223). This the classical theory denies. On this view the mental is what Wittgenstein (1953) calls "a family resemblance concept." There is no one feature that marks off all mental things from all non-mental or, if you insist, 'physical' things. All the important categorical distinctions, those between processes, instantaneous events and dispositional states, between properties and relations, are found on both sides of the mental/physical divide.² This is not stated in so many words. But it is implicit (a) in the endorsement of the analysis of "cognitive concepts like 'knowing', 'believing', 'understanding', 'remembering', and volitional concepts like 'wanting' and 'intending' . . . in terms of dispositions to behave" (Place, 1956, p. 44), (b) in the consequent restriction of the identity theory to the "intractable residue of concepts clustering around the notions of consciousness, experience, sensation and mental imagery, where some sort of inner process story is unavoidable" (Place, 1956, p. 44)), and (c) in the use of a series of non-mental examples from "his table is an old packing case", through "the cloud [is] a mass of droplets or other particles in suspension" to "lightning is a motion of electric charges" (Place, 1956, pp. 46-7), to illustrate the kind of relation postulated between consciousness and the brain process with which it will be found to correlate.

Propositional Attitudes and the Oratio Obliqua

It is ironic that in characterizing mental verbs, the nearest Davidson comes to giving an account of what he thinks distinguishes the mental from the physical, he (1980 p. 210) claims that "we may call those verbs mental that express propositional attitudes" and he proceeds to give a list of examples which coincides almost exactly with those which the classical theory excludes from the scope of the identity theory on the grounds that in these cases "an analysis in terms of dispositions to behave (Wittgenstein, 1953; Ryle, 1949) is fundamentally sound" (Place 1956, p. 44). Davidson, not surprisingly, rejects this behaviorist account of propositional attitudes; but he does so in a manner that shows that he has failed to grasp what a propositional attitude is and what, in his own words, "the vocabulary of propositional attitudes" amounts to.

A propositional attitude, properly so-called, is a dispositional mental state whose potential manifestations are characterized by means of an embedded declarative sentence in oratio obliqua or indirect reported speech in the position of the direct grammatical object of a mental/psychological verb. In formal notation a propositional attitude is a dispositional state characterized by means of a

sentence of the form 'X Ψ s *that p*,' where X is a person, Ψ is a psychological verb and *p* is a declarative sentence in oratio obliqua.

As Peter Geach (1957, p. 9) points out in the only discussion of it that I know of in the philosophical literature, this is "the same construction as is used with 'verbs of saying' to report the gist or upshot of somebody's remark rather than the actual words he used". As used to characterize a propositional attitude it allows for the fact that someone who is disposed to make an assertion or statement of a particular kind and act accordingly will express the proposition in question in a variety of different ways on different occasions. Consequently, to use oration recta to quote a particular sentence the individual might have used on a particular occasion would be to misrepresent the essentially open-ended character of this as of other dispositions. It is a striking fact that of the eight verbs mentioned by Davidson the verb 'to hope' is the only one whose grammatical object is restricted to embedded declarative sentences in oratio obliqua. All the other verbs on Davidson's list take at least one other construction as well. There is 'believe in O', 'intend to A', 'desire O', 'know O', and 'know' + an interrogative sentence introduced by an interrogative pronoun, 'notice O', 'perceive O' and 'perceive' + interrogative, 'remember O' and 'remember' + interrogative, where O is any object or person and A is any verb of action.

Although these alternative constructions do not involve an embedded *declarative* sentence, and do not therefore describe a propositional attitude in the strict sense of that word, those that take an interrogative are using an embedded sentence as a way of quoting the "gist or upshot" not of a type of statement the individual is disposed to make, but of a type of question he or she is in a position to answer and answer correctly. Hence the restriction of this construction what Ryle (1949) calls "got it" verbs such as 'know', 'perceive' and 'remember'.

Furthermore, even in the cases where the grammatical object stands for an object or action there is reason to think that the name or description by which it is identified is still a quotation of the name or description on which the individual in question is disposed to use when characterizing the goal towards which the disposition in question is orientated. The evidence for this is that, as in the case of the names and definite descriptions which occur within embedded oratio obliqua sentences whether declarative or interrogative, names and descriptions that occur by themselves as the grammatical objects of such verbs are subject to the phenomenon which Frege (1892) calls "indirect reference", which Quine (1980) calls "referential opacity" and which Geach (1968, p. 165) calls "non-Shakespearianity" (a reference to "A rose by any other name would smell as sweet") whereby within these "opaque contexts," as Quine calls them, is a suspension of the principle whereby any name or description which picks out the same object can be substituted for a name or description without altering the truth value of a statement or what we may call the "thrust" of an imperative or interrogative in which it occurs. The suspension of this principle within an opaque context is readily explained by the fact that such contexts are quotations of what someone has said or might be expected to say. For, if the alternative name or description was not available to the individual in question, to substitute it would be to misrepresent that individual's linguistic dispositions.

It is ironic that the best evidence we have that this is the correct interpretation of the phenomenon of referential opacity comes from Davidson's (1982) own paper "Rational animals" in which he shows that what would be opaque contexts, if the subject of the sentence were a linguistically competent human being, become transparent when the subject of the sentence is a linguistically incompetent animal.³

What this shows us that Davidson's "vocabulary of propositional attitudes" is not a vocabulary, but a grammatical construction. It is the use of *oratio obliqua* or indirect reported speech to characterize the orientation of a disposition to talk in a particular way and act accordingly, a construction which, though extended to cover the behavioral dispositions of animals, has literal application only to those of linguistically competent humans. This can be seen as a vindication of the classical theory which maintains that verbs taking this construction serve to characterize behavioral dispositions, and do not, therefore, *require* a reduction to states of the brain, whether as types or as tokens, in order to render them consistent with a physicalist standpoint. At the same time Davidson's contention that locutions of this kind can never enter into strict psycho-physical laws is also vindicated. For, if by a strict law is meant a law which asserts an invariable coincidence between the extensions of two concepts, it is evident that dispositional concepts with their necessarily open-ended intensional character, and not just those that are characterized by means of the *oratio obliqua* construction, have no place in such laws. This might be an embarrassment, if the classical theory were committed, as is Medlin⁴ (1967) and Armstrong's (1968) "central state materialism," to the view that dispositional states are type-identical with the states of the brain with which they are correlated. But since more recent versions of the classical theory (Place 1967, p. 61; Armstrong et al., pp. 30, 109-110, 115-122) identify this as a causal relation between "distinct existences," and since, on my view, causal relations require no such strict laws,⁵ this is no embarrassment for that theory.

Mind-brain Identity - Empirical Hypothesis or A Priori Dogma?

We have seen that from the standpoint of the classical theory the importance of the token- /type-identity distinction lies in the fact that whereas token-identities are typically synthetic, contingently true, if they are true, and verified empirically, type-identities are typically analytic, necessarily true in the sense that their denial is self-contradictory and true *a priori*. The focus of interest is on the conditions under which type-identity statements are synthetic, contingent and subject to empirical verification, namely, the conditions which obtain in the case of the proposed type-identity between consciousness and some, as yet unspecified, brain process. In such cases the fact that the two predicates invariably have the same extension remains to be demonstrated. Only when it is, and the ensuing identity statement becomes a matter of common knowledge, will it become an analytic, necessary and *a priori* truth.

To this discussion anomalous monism has nothing to contribute. The analytic-synthetic distinction is not mentioned in this connection: though the Quinean character of Davidson's position suggests that he endorses Quine's (1951) repudiation of that distinction. What is clear is that he rejects on *a priori* grounds the possibility of formulating a true type-identity statement equating a mentally characterized entity on the one hand with a physically (neurophysiologically) characterized entity on the other. But, since there is no way that a psycho-physical token identity statement could be verified by simple inspection in the way the statement that someone's table is an old packing case is verified, this effectively rules out the possibility of establishing the truth of any putative psycho-physical token identity statement by empirical means.

Davidson, nevertheless, maintains in the light of a purely *a priori* argument that every particular event characterized in mental language is one and the same as an event characterized in the language of neuroscience. Though, since no such token-identity statement can be verified empirically, we shall never know which events these are.

Davidson's A Priori Argument for Token-Identity Physicalism

It may be argued that the token-identity physicalist need not be concerned by the fact that there is no conceivable prospect of the truth of any psycho-physical token-identity statement being established in the future which does not depend on the prior establishment of the truth of a psycho-physical type-identity statement. For, unlike type-identity physicalism, token-identity physicalism is not committed to any prediction as to what future empirical research will reveal. It is one of those doctrines, beloved of philosophers, theologians and the peddlers of superstition, which are rightly despised by empirical scientists in that they are so crafted as to render them immune to empirical disconfirmation (cf. Popper, 1963).

As originally formulated by Davidson (1970), the case for token-identity physicalism rests not on the outcome of future psycho-physiological research, but on an a priori argument. The argument appears to take the form of the Hegelian Dialectic:⁶

1. *Thesis*

Mental events, their causes and their effects are not subject to the kind of law (strict and universally quantified over individuals) which physical theory aims to formulate.

2. *Antithesis*

2a. Mental events cause human actions.

2b. All causation involves the kind of law (strict and universally quantified over individuals as well as occasions) that physical theory aims to formulate.⁷

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2c. The relation between a mental event and the human action it causes is subject to the kind of law (strict and universally quantified over individuals) which physical theory aims to formulate.

BUT 1 and 2c are contradictory. They can be reconciled, however, by

3. *Synthesis*

3a. Every mental event is token-identical with some physical event.

3b. There are and never will be any true strict law statements universally quantified over individuals covering the causal relation between mental events so formulated and the actions they cause (= 1 above).

3c. There either is or ultimately will be a true strict law statement universally quantified over individuals covering the causal relation between the various physical events with which particular mental events are token-identical and the actions they cause (= 2c above).

3b and 3c are consistent. Hence, if we can accept that 3b = 1 and that 3c = 2c, then the apparent conflict between 1 and 2c is reconciled.

While this argument undoubtedly provides those who see a problem in reconciling the doctrine of the freedom of the human will with scientific determinism with a *motive* for subscribing to token-identity physicalism, it falls, like all arguments of this form, a long way short of providing a watertight a priori argument for the truth of the doctrine, even if the truth of all the argument's premises is accepted.

Conclusion: "Perfect Correlation Is Identity"

I conclude that, apart from the dubious advantage that it is less susceptible than is the type-identity variety to empirical disconfirmation, token-identity physicalism has nothing to recommend it over its more robust type-identity rival. Moreover, so far from protecting physicalism from empirical disconfirmation, the token-identity version is itself in serious danger of being side-lined, if not actually falsified, by the emergence in the light of current and future research of the kind of “perfect correlation” between psychological and physiological measures which according to the originator of the identity theory, the psychologist E. G. Boring (1933, p. 16) constitutes identity. What Boring perhaps should have said is that if two measures correlate perfectly and spontaneously without requiring any experimental controls to induce them to do so, we have cast iron evidence that they measure one and the same thing.⁸ If, as seems more than likely, future research using the recently discovered techniques of brain imaging will allow us to identify such perfect correlations between mentally and physically specified variables, we shall be in a position to assert with confidence that at least some specifiable type-identity statements involving mentally and physically characterized processes are known to be true. In that case, who will give a fig for token-identity physicalism?

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Notes

¹ See Place (1997) for a fuller exposition of this distinction and Place (1999), for its application to refute C.B. Martin's (1994) electro-fink argument.

² Davidson (1980, p. 210) dismisses this important distinction with the sentence: "The theory under discussion is silent about processes, states, and attributes if these differ from individual events." But later on the same page he makes it clear that what he is really talking about are those mental verbs which (sometimes) take as their grammatical object an embedded declarative sentence in *oratio obliqua* or indirect reported speech, i.e., a clause of the form "that p." Of the examples of such verbs that he lists only two, 'notice' and 'perceive' are invariably used to refer to a "clockable" mental event. Of the others 'remember' is sometimes so used, but not always. The remainder ('believe', 'intend', 'desire', 'hope', 'know') invariably refer to dispositional mental states, as does 'remember' in many of its uses. Furthermore, as I pointed out in my "The mental and the physical - a reply to Dr. Meynell" (Place, 1973), mental events are constituted by the interface between an antecedent mental process and a subsequent and consequent dispositional state; and it is the subsequent and consequent dispositional mental state that is characterized by the "that p" clause.

³ For a more extensive discussion of this point see my "Intentionality as the mark of the dispositional" (Place 1996, pp.114-115).

⁴ In Place (1999b) I made the mistake of suggesting that Medlin had borrowed the concept of central state materialism from Armstrong. In fact it appears that Medlin has as much if not more claim to have originated the doctrine than has Armstrong. I hope this acknowledgment will go some way to correcting a mistake which, since the book is now published, I am not in a position to retract.

⁵ See Goodman (1965, pp. 34-49) for the view that causal counterfactuals are sustained by dispositional statements ascribed to tokens as well as types, i.e., they need to be universally quantified over occasions within the period over which the disposition obtains, but not over dispositional property bearers. See Place (1997; 1999a) for the view that such law statements are not properly represented by the formula "If *p* then *q*" and are invariably subject to a *ceteris paribus* or "other things being equal" clause.

⁶ In Place (1988) I offered a different reconstruction of Davidson's argument. Though it turns Davidson's on its head by taking as its conclusion what for him is evidently a premise ("There are no psycho-physical bridge laws"), I would stand by the 1988 reconstruction as representing one strand in Davidson's somewhat convoluted thinking on this issue. The present reconstruction, however, is undoubtedly much closer to the original.

⁷ As stated elsewhere (Place, 1987; 1988; Armstrong et al., 1996), I reject this premise on the grounds that, as Nelson Goodman (1965, pp. 34-49) points out, all that is required to "sustain" a causal counterfactual is a dispositional statement which is restricted in its scope to the behavior of a single individual and that is universally quantified only over occasions during the lifetime of the disposition.

⁸ For a discussion of Boring's contribution and of the case for the view that the kind of perfect correlation Boring has in mind is never found in a causal relation between distinct existences see Place, 1990, pp. 28-29.