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The meaning of 'meaning'*

Language is the first broad area of human cognitive capacity for which we are beginning to obtain a description which is not exaggeratedly oversimplified. Thanks to the work of contemporary transformational linguists,† a very subtle description of at least some human languages is in the process of being constructed. Some features of these languages appear to be *universal*. Where such features turn out to be 'species-specific' – 'not explicable on some general grounds of functional utility or simplicity that would apply to arbitrary systems that serve the functions of language' – they may shed some light on the structure of mind. While it is extremely difficult to say to what extent the structure so illuminated will turn out to be a universal structure of *language*, as opposed to a universal structure of innate general learning strategies,‡ the very fact that this discussion can take place is testimony to the richness and generality of the descriptive material that linguists are beginning to provide, and also testimony to the depth of the analysis, insofar as the features that appear to be candidates for 'species-specific' features of language are in no sense surface or phenomenological features of language, but lie at the level of deep structure.

The most serious drawback to all of this analysis, as far as a philosopher is concerned, is that it does not concern the meaning of words. Analysis of the deep structure of linguistic forms gives us an incomparably more powerful description of the *syntax* of natural languages than we have ever had before. But the dimension of language associated with the word 'meaning' is, in spite of the usual spate of heroic if misguided attempts, as much in the dark as it ever was.

In this essay, I want to explore why this should be so. In my opinion, the reason that so-called semantics is in so much worse condition than syntactic theory is that the *prescientific* concept on which semantics is

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† The contributors to this area are now too numerous to be listed: the pioneers were, of course, Zellig Harris and Noam Chomsky.

‡ For a discussion of this question see Putnam (1967) and N. Chomsky (1971), especially chapter 1.

based – the prescientific concept of *meaning* – is itself in much worse shape than the prescientific concept of syntax. As usual in philosophy, skeptical doubts about the concept do not at all help one in clarifying or improving the situation any more than dogmatic assertions by conservative philosophers that all's really well in this best of all possible worlds. The reason that the prescientific concept of meaning is in bad shape is not clarified by some general skeptical or nominalistic argument to the effect that meanings don't exist. Indeed, the upshot of our discussion will be that meanings don't exist in quite the way we tend to think they do. But electrons don't exist in quite the way Bohr thought they did, either. There is all the distance in the world between this assertion and the assertion that meanings (or electrons) 'don't exist'.

I am going to talk almost entirely about the meaning of words rather than about the meaning of sentences because I feel that our concept of word-meaning is more defective than our concept of sentence-meaning. But I will comment briefly on the arguments of philosophers such as Donald Davidson who insist that the concept of word-meaning *must* be secondary and that study of sentence-meaning must be primary. Since I regard the traditional theories about meaning as myth-eaten (notice that the topic of 'meaning' is the one topic discussed in philosophy in which there is literally nothing but 'theory' – literally nothing that can be labelled or even ridiculed as the 'common sense view'), it will be necessary for me to discuss and try to disentangle a number of topics concerning which the received view is, in my opinion, wrong. The reader will give me the greatest aid in the task of trying to make these matters clear if he will kindly assume that *nothing* is clear in advance.

Meaning and extension

Since the Middle Ages at least, writers on the theory of meaning have purported to discover an ambiguity in the ordinary concept of meaning, and have introduced a pair of terms – *extension* and *intension*, or *Sinn* and *Bedeutung*, or whatever – to disambiguate the notion. The *extension* of a term, in customary logical parlance, is simply the set of things the term is true of. Thus, 'rabbit', in its most common English sense, is true of all and only rabbits, so the extension of 'rabbit' is precisely the set of rabbits. Even this notion – and it is the *least* problematical notion in this cloudy subject – has its problems, however. Apart from problems it inherits from its parent notion of *truth*, the foregoing example of 'rabbit' *in its most common English sense* illustrates one such problem: strictly speaking, it is not a term, but an ordered pair consisting of a term and a 'sense' (or an occasion of use, or something else that dis-

tinguishes a term in one sense from the same term used in a different sense) that has an extension. Another problem is this: a 'set', in the mathematical sense, is a 'yes-no' object; any given object either definitely belongs to S or definitely does not belong to S , if S is a set. But words in a natural language are not generally 'yes-no': there are things of which the description 'tree' is clearly true and things of which the description 'tree' is clearly false, to be sure, but there are a host of borderline cases. Worse, the line between the clear cases and the borderline cases is itself fuzzy. Thus the idealization involved in the notion of *extension* – the idealization involved in supposing that there is such a thing as the set of things of which the term 'tree' is true – is actually very severe.

Recently some mathematicians have investigated the notion of a *fuzzy set* – that is, of an object to which other things belong or do not belong with a given probability or to a given degree, rather than belong 'yes-no'. If one really wanted to formalize the notion of extension as applied to terms in a natural language, it would be necessary to employ 'fuzzy sets' or something similar rather than sets in the classical sense.

The problem of a word's having more than one sense is standardly handled by treating each of the senses as a different word (or rather, by treating the word as if it carried invisible subscripts, thus: 'rabbit₁' – animal of a certain kind; 'rabbit₂' – coward; and as if 'rabbit₁' and 'rabbit₂' or whatever were different words entirely). This again involves two very severe idealizations (at least two, that is): supposing that words have discretely many senses, and supposing that the entire repertoire of senses is fixed once and for all. Paul Ziff has recently investigated the extent to which both of these suppositions distort the actual situation in natural language;† nevertheless, we will continue to make these idealizations here.

Now consider the compound terms 'creature with a heart' and 'creature with a kidney'. Assuming that every creature with a heart possesses a kidney and vice versa, the extension of these two terms is exactly the same. But they obviously differ in meaning. Supposing that there is a sense of 'meaning' in which meaning = extension, there must be another sense of 'meaning' in which the meaning of a term is not its extension but something else, say the 'concept' associated with the term. Let us call this 'something else' the *intension* of the term. The concept of a creature with a heart is clearly a different concept from the concept of a creature with a kidney. Thus the two terms have different intension. When we say they have different 'meaning', meaning = intension.

† This is discussed by Ziff (1972) especially chapter VIII.

Intension and extension

Something like the preceding paragraph appears in every standard exposition of the notions 'intension' and 'extension'. But it is not at all satisfactory. Why it is not satisfactory is, in a sense, the burden of this entire essay. But some points can be made at the very outset: first of all, what evidence is there that 'extension' is a sense of the word 'meaning'? The canonical explanation of the notions 'intension' and 'extension' is very much like 'in one sense "meaning" means *extension* and in the other sense "meaning" means *meaning*'. The fact is that while the notion of 'extension' is made quite precise, relative to the fundamental logical notion of *truth* (and under the severe idealizations remarked above), the notion of intension is made no more precise than the vague (and, as we shall see, misleading) notion 'concept'. It is as if someone explained the notion 'probability' by saying: 'in one sense "probability" means frequency, and in the other sense it means *propensity*'. 'Probability' *never* means 'frequency', and 'propensity' is at least as unclear as 'probability'.

Unclear as it is, the traditional doctrine that the notion 'meaning' possesses the extension/intension ambiguity has certain typical consequences. Most traditional philosophers thought of concepts as something *mental*. Thus the doctrine that the meaning of a term (the meaning 'in the sense of intension', that is) is a concept carried the implication that meanings are mental entities. Frege and more recently Carnap and his followers, however, rebelled against this 'psychologism', as they termed it. Feeling that meanings are *public* property – that the *same* meaning can be 'grasped' by more than one person and by persons at different times – they identified concepts (and hence 'intensions' or meanings) with abstract entities rather than mental entities. However, 'grasping' these abstract entities was still an individual psychological act. None of these philosophers doubted that understanding a word (knowing its intension) was just a matter of being in a certain psychological state (somewhat in the way in which knowing how to factor numbers in one's head is just a matter of being in a certain very complex psychological state).

Secondly, the timeworn example of the two terms 'creature with a kidney' and 'creature with a heart' does show that two terms can have the same extension and yet differ in intension. But it was taken to be obvious that the reverse is impossible: two terms cannot differ in extension and have the same intension. Interestingly, no argument for this impossibility was ever offered. Probably it reflects the tradition of the ancient and medieval philosophers who assumed that the concept

corresponding to a term was just a conjunction of predicates, and hence that the concept corresponding to a term must *always* provide a necessary and sufficient condition for falling into the extension of the term.† For philosophers like Carnap, who accepted the verifiability theory of meaning, the concept corresponding to a term provided (in the ideal case, where the term had 'complete meaning') a *criterion* for belonging to the extension (not just in the sense of 'necessary and sufficient condition', but in the strong sense of *way of recognizing* if a given thing falls into the extension or not). Thus these positivistic philosophers were perfectly happy to retain the traditional view on this point. So theory of meaning came to rest on two unchallenged assumptions:

(I) That knowing the meaning of a term is just a matter of being in a certain psychological state (in the sense of 'psychological state', in which states of memory and psychological dispositions are 'psychological states'; no one thought that knowing the meaning of a word was a continuous state of consciousness, of course).

(II) That the meaning of a term (in the sense of 'intension') determines its extension (in the sense that sameness of intension entails sameness of extension).

I shall argue that these two assumptions are not jointly satisfied by *any* notion, let alone any notion of meaning. The traditional concept of meaning is a concept which rests on a false theory.

'Psychological state' and methodological solipsism

In order to show this, we need first to clarify the traditional notion of a psychological state. In one sense a state is simply a two-place predicate whose arguments are an individual and a time. In this sense, *being five feet tall*, *being in pain*, *knowing the alphabet*, and even *being a thousand miles from Paris* are all states. (Note that the *time* is usually left implicit

† This tradition grew up because *the* term whose analysis provoked all the discussion in medieval philosophy was the term 'God', and the term 'God' was thought to be defined through the conjunction of the terms 'Good', 'Powerful', 'Omniscient', etc. – the so called 'Perfections'. There was a problem, however, because God was supposed to be a Unity, and Unity was thought to exclude His essence being complex in *any* way – i.e. 'God' was defined through a conjunction of terms, but God (without quotes) could not be the logical product of properties, nor could He be the unique thing exemplifying the logical product of two or more *distinct* properties, because even this highly abstract kind of 'complexity' was held to be incompatible with His perfection of Unity. This is a theological paradox with which Jewish, Arabic, and Christian theologians wrestled for centuries (e.g. the doctrine of the Negation of Privation in Maimonides and Aquinas). It is amusing that theories of contemporary interest, such as conceptualism and nominalism, were first proposed as solutions to the problem of predication in the case of God. It is also amusing that the favorite model of definition in all of this theology – the conjunction-of-properties model – should survive, at least through its consequences, in philosophy of language until the present day.

or 'contextual'; the full form of an atomic sentence of these predicates would be '*x is five feet tall at time t*', '*x is in pain at time t*', etc.) In science, however, it is customary to restrict the term state to properties which are defined in terms of the parameters of the individual which are fundamental from the point of view of the given science. Thus, being five feet tall is a state (from the point of view of physics); being in pain is a state (from the point of view of mentalistic psychology, at least); knowing the alphabet might be a state (from the point of view of cognitive psychology), although it is hard to say; but being a thousand miles from Paris would *not* naturally be called a *state*. In one sense, a psychological state is simply a state which is studied or described by psychology. In this sense it may be trivially true that, say *knowing the meaning of the word 'water'* is a 'psychological state' (viewed from the standpoint of cognitive psychology). But this is not the sense of psychological state that is at issue in the above assumption (I).

When traditional philosophers talked about psychological states (or 'mental' states), they made an assumption which we may call the assumption of methodological solipsism. This assumption is the assumption that no psychological state, properly so called, presupposes the existence of any individual other than the subject to whom that state is ascribed. (In fact, the assumption was that no psychological state presupposes the existence of the subject's *body* even: if *P* is a psychological state, properly so called, then it must be logically possible for a 'disembodied mind' to be in *P*.) This assumption is pretty explicit in Descartes, but it is implicit in just about the whole of traditional philosophical psychology. Making this assumption is, of course, adopting a *restrictive program* – a program which deliberately limits the scope and nature of psychology to fit certain mentalistic preconceptions or, in some cases, to fit an idealistic reconstruction of knowledge and the world. Just *how* restrictive the program is, however, often goes unnoticed. Such common or garden variety psychological states as *being jealous* have to be reconstructed, for example, if the assumption of methodological solipsism is retained. For, in its ordinary use, *x is jealous of y* entails that *y* exists, and *x is jealous of y's regard for z* entails that both *y* and *z* exist (as well as *x*, of course). Thus *being jealous* and *being jealous of someone's regard for someone else* are not psychological states permitted by the assumption of methodological solipsism. (We shall call them 'psychological states in the wide sense' and refer to the states which are permitted by methodological solipsism as 'psychological states in the narrow sense'.) The reconstruction required by methodological solipsism would be to reconstrue *jealousy* so that I can be jealous of my own hallucinations, or of figments of my imagination, etc. Only if we assume

that psychological states in the narrow sense have a significant degree of causal closure (so that restricting ourselves to psychological states in the narrow sense will facilitate the statement of psychological *laws*) is there any point in engaging in this reconstruction, or in making the assumption of methodological solipsism. But the three centuries of failure of mentalistic psychology is tremendous evidence against this procedure, in my opinion.

Be that as it may, we can now state more precisely what we claimed at the end of the preceding section. Let *A* and *B* be any two terms which differ in extension. By assumption (II) they must differ in meaning (in the sense of 'intension'). By assumption (I), *knowing the meaning of A* and *knowing the meaning of B* are psychological states *in the narrow sense* – for this is how we shall construe assumption (I). *But these psychological states must determine the extension of the terms A and B just as much as the meanings ('intensions') do.*

To see this, let us try assuming the opposite. Of course, there cannot be two terms *A* and *B* such that *knowing the meaning of A* is the same state as *knowing the meaning of B* even though *A* and *B* have different extensions. For *knowing the meaning of A* isn't just 'grasping the intension' of *A*, whatever that may come to; it is also knowing that the 'intension' that one has 'grasped' is the intension of *A*. (Thus, someone who knows the meaning of 'wheel' presumably 'grasps the intension' of its German synonym *Rad*; but if he doesn't know that the 'intension' in question is the intension of *Rad* he isn't said to 'know the meaning of *Rad*'.) If *A* and *B* are different terms, then *knowing the meaning of A* is a different state from *knowing the meaning of B* whether the meanings of *A* and *B* be themselves the same or different. But by the same argument, if *I*₁ and *I*₂ are different *intensions* and *A* is a term, then *knowing that I*₁ *is the meaning of A* is a different psychological state from *knowing that I*₂ *is the meaning of A*. Thus, there cannot be two different logically possible worlds *L*₁ and *L*₂ such that, say, Oscar is in the *same* psychological state (in the narrow sense) in *L*₁ and in *L*₂ (in all respects), but in *L*₁ Oscar understands *A* as having the meaning *I*₁ and in *L*₂ Oscar understands *A* as having the meaning *I*₂. (For, if there were, then in *L*₁ Oscar would be in the psychological state *knowing that I*₁ *is the meaning of A* and in *L*₂ Oscar would be in the psychological state *knowing that I*₂ *is the meaning of A*, and these are different and even – assuming that *A* has just *one* meaning for Oscar in each world – incompatible psychological states in the narrow sense.)

In short, if *S* is the sort of psychological state we have been discussing – a psychological state of the form *knowing that I is the meaning of A*, where *I* is an 'intension' and *A* is a term – then the *same* necessary and

sufficient condition for falling into the extension of *A* 'works' in *every* logically possible world in which the speaker is in the psychological state *S*. For the state *S* determines the intension *I*, and by assumption (II) the intension amounts to a necessary and sufficient condition for membership in the *extension*.

If our interpretation of the traditional doctrine of intension and extension is fair to Frege and Carnap, then the whole psychologism/Platonism issue appears somewhat a tempest in a teapot, as far as meaning-theory is concerned. (Of course, it is a very important issue as far as general philosophy of mathematics is concerned.) For even if meanings are 'Platonic' entities rather than 'mental' entities on the Frege-Carnap view, 'grasping' those entities is presumably a psychological state (in the narrow sense). Moreover, the psychological state uniquely determines the 'Platonic' entity. So whether one takes the 'Platonic' entity or the psychological state as the 'meaning' would appear to be somewhat a matter of convention. And taking the psychological state to be the meaning would hardly have the consequence that Frege feared, that meanings would cease to be public. For psychological states are 'public' in the sense that different people (and even people in different epochs) can be in the *same* psychological state. Indeed, Frege's argument against psychologism is only an argument against identifying concepts with mental particulars, not with mental entities in general.

The 'public' character of psychological states entails, in particular, that if Oscar and Elmer understand a word *A* differently, then they must be in *different* psychological states. For the state of *knowing the intension* of *A* to be, say, *I* is the *same* state whether Oscar or Elmer be in it. Thus two speakers cannot be in the same psychological state in all respects and understand the term *A* differently; the psychological state of the speaker determines the intension (and hence, by assumption (II), the extension) of *A*.

It is this last consequence of the joint assumptions (I), (II) that we claim to be false. We claim that it is possible for two speakers to be in exactly the *same* psychological state (in the narrow sense), even though the extension of the term *A* in the idiolect of the one is different from the extension of the term *A* in the idiolect of the other. Extension is *not* determined by psychological state.

This will be shown in detail in later sections. If this is right, then there are two courses open to one who wants to rescue at least one of the traditional assumptions; to give up the idea that psychological state (in the narrow sense) determines *intension*, or to give up the idea that *intension* determines *extension*. We shall consider these alternatives later.

Are meanings in the head?

That psychological state does not determine extension will now be shown with the aid of a little science-fiction. For the purpose of the following science-fiction examples, we shall suppose that somewhere in the galaxy there is a planet we shall call Twin Earth. Twin Earth is very much like Earth; in fact, people on Twin Earth even speak *English*. In fact, apart from the differences we shall specify in our science-fiction examples, the reader may suppose that Twin Earth is *exactly* like Earth. He may even suppose that he has a *Doppelgänger* – an identical copy – on Twin Earth, if he wishes, although my stories will not depend on this.

Although some of the people on Twin Earth (say, the ones who call themselves 'Americans' and the ones who call themselves 'Canadians' and the ones who call themselves 'Englishmen', etc.) speak English, there are, not surprisingly, a few tiny differences which we will now describe between the dialects of English spoken on Twin Earth and Standard English. These differences themselves depend on some of the peculiarities of Twin Earth.

One of the peculiarities of Twin Earth is that the liquid called 'water' is not H_2O but a different liquid whose chemical formula is very long and complicated. I shall abbreviate this chemical formula simply as *XYZ*. I shall suppose that *XYZ* is indistinguishable from water at normal temperatures and pressures. In particular, it tastes like water and it quenches thirst like water. Also, I shall suppose that the oceans and lakes and seas of Twin Earth contain *XYZ* and not water, that it rains *XYZ* on Twin Earth and not water, etc.

If a spaceship from Earth ever visits Twin Earth, then the supposition at first will be that 'water' has the same meaning on Earth and on Twin Earth. This supposition will be corrected when it is discovered that 'water' on Twin Earth is *XYZ*, and the Earthian spaceship will report somewhat as follows:

'On Twin Earth the word "water" means *XYZ*.'

(It is this sort of use of the word 'means' which accounts for the doctrine that extension is one sense of 'meaning', by the way. But note that although 'means' does mean something like *has as extension* in this example, one would *not* say

'On Twin Earth the meaning of the word "water" is *XYZ*.'

unless, possibly, the fact that 'water is *XYZ*' was known to every adult speaker of English on Twin Earth. We can account for this in terms of the theory of meaning we develop below; for the moment we just

remark that although the verb 'means' sometimes means 'has as extension', the nominalization 'meaning' *never* means 'extension'.)

Symmetrically, if a spaceship from Twin Earth ever visits Earth, then the supposition at first will be that the word 'water' has the same meaning on Twin Earth and on Earth. This supposition will be corrected when it is discovered that 'water' on Earth is H_2O , and the Twin Earthian spaceship will report:

'On Earth† the word "water" means H_2O .'

Note that there is no problem about the extension of the term 'water'. The word simply has two different meanings (as we say): in the sense in which it is used on Twin Earth, the sense of $water_{TE}$, what *we* call 'water' simply isn't water; while in the sense in which it is used on Earth, the sense of $water_E$, what the Twin Earthians call 'water' simply isn't water. The extension of 'water' in the sense of $water_E$ is the set of all wholes consisting of H_2O molecules, or something like that; the extension of water in the sense of $water_{TE}$ is the set of all wholes consisting of XYZ molecules, or something like that.

Now let us roll the time back to about 1750. At that time chemistry was not developed on either Earth or Twin Earth. The typical Earthian speaker of English did not know water consisted of hydrogen and oxygen, and the typical Twin Earthian speaker of English did not know 'water' consisted of XYZ . Let $Oscar_1$ be such a typical Earthian English speaker, and let $Oscar_2$ be his counterpart on Twin Earth. You may suppose that there is no belief that $Oscar_1$ had about water that $Oscar_2$ did not have about 'water'. If you like, you may even suppose that $Oscar_1$ and $Oscar_2$ were exact duplicates in appearance, feelings, thoughts, interior monologue, etc. Yet the extension of the term 'water' was just as much H_2O on Earth in 1750 as in 1950; and the extension of the term 'water' was just as much XYZ on Twin Earth in 1750 as in 1950. $Oscar_1$ and $Oscar_2$ understood the term 'water' differently in 1750 *although they were in the same psychological state*, and although, given the state of science at the time, it would have taken their scientific communities about fifty years to discover that they understood the term 'water' differently. Thus the extension of the term 'water' (and, in fact, its 'meaning' in the intuitive preanalytical usage of that term) is *not* a function of the psychological state of the speaker by itself.

But, it might be objected, why should we accept it that the term 'water' has the same extension in 1750 and in 1950 (on both Earths)? The logic of natural-kind terms like 'water' is a complicated matter,

† Or rather, they will report: 'On Twin Earth (*the Twin Earthian name for Terra - H.P.*) the word "water" means H_2O .'

but the following is a sketch of an answer. Suppose I point to a glass of water and say 'this liquid is called water' (or 'this is called water', if the marker 'liquid' is clear from the context). My 'ostensive definition' of water has the following empirical presupposition: that the body of liquid I am pointing to bears a certain sameness relation (say, *x is the same liquid as y*, or *x is the same_L as y*) to most of the stuff I and other speakers in my linguistic community have on other occasions called 'water'. If this presupposition is false because, say, I am without knowing it pointing to a glass of gin and not a glass of water, then I do not intend my ostensive definition to be accepted. Thus the ostensive definition conveys what might be called a defeasible necessary and sufficient condition: the necessary and sufficient condition for being water is bearing the relation same_L to the stuff in the glass; but this is the necessary and sufficient condition only if the empirical presupposition is satisfied. If it is not satisfied, then one of a series of, so to speak, 'fallback' conditions becomes activated.

The key point is that the relation same_L is a *theoretical* relation: whether something is or is not the same liquid as *this* may take an indeterminate amount of scientific investigation to determine. Moreover, even if a 'definite' answer has been obtained either through scientific investigation or through the application of some 'common sense' test, the answer is *defeasible*: future investigation might reverse even the most 'certain' example. Thus, the fact that an English speaker in 1750 might have called XYZ 'water', while he or his successors would not have called XYZ water in 1800 or 1850 does not mean that the 'meaning' of 'water' changed for the average speaker in the interval. In 1750 or in 1850 or in 1950 one might have pointed to, say, the liquid in Lake Michigan as an example of 'water'. What changed was that in 1750 we would have mistakenly thought that XYZ bore the relation same_L to the liquid in Lake Michigan, while in 1800 or 1850 we would have known that it did not (I am ignoring the fact that the liquid in Lake Michigan was only dubiously water in 1950, of course).

Let us now modify our science-fiction story. I do not know whether one can make pots and pans out of molybdenum; and if one can make them out of molybdenum, I don't know whether they could be distinguished easily from aluminum pots and pans. (I don't know any of this even though I have acquired the word 'molybdenum'.) So I shall suppose that molybdenum pots and pans *can't* be distinguished from aluminum pots and pans save by an expert. (To emphasize the point, I repeat that this could be true for all I know, and *a fortiori* it could be true for all I know by virtue of 'knowing the meaning' of the words *aluminum* and *molybdenum*.) We will now suppose that molybdenum is

as common on Twin Earth as aluminum is on Earth, and that aluminum is as rare on Twin Earth as molybdenum is on Earth. In particular, we shall assume that 'aluminum' pots and pans are made of molybdenum on Twin Earth. Finally, we shall assume that the words 'aluminum' and 'molybdenum' are *switched* on Twin Earth: 'aluminum' is the name of *molybdenum* and 'molybdenum' is the name of *aluminum*.

This example shares some features with the previous one. If a spaceship from Earth visited Twin Earth, the visitors from Earth probably would not suspect that the 'aluminum' pots and pans on Twin Earth were not made of aluminum, especially when the Twin Earthians *said* they were. But there is one important difference between the two cases. An Earthian metallurgist could tell very easily that 'aluminum' was molybdenum, and a Twin Earthian metallurgist could tell equally easily that aluminum was 'molybdenum'. (The shudder quotes in the preceding sentence indicate Twin Earthian usages.) Whereas in 1750 no one on either Earth or Twin Earth could have distinguished water from 'water', the confusion of aluminum with 'aluminum' involves only a part of the linguistic communities involved.

The example makes the same point as the preceding one. If Oscar₁ and Oscar₂ are standard speakers of Earthian English and Twin Earthian English respectively, and neither is chemically nor metallurgically sophisticated, then there may be no difference at all in their psychological state when they use the word 'aluminum'; nevertheless we have to say that 'aluminum' has the extension *aluminum* in the idiolect of Oscar₁ and the extension *molybdenum* in the idiolect of Oscar₂. (Also we have to say that Oscar₁ and Oscar₂ mean different things by 'aluminum', that 'aluminum' has a different meaning on Earth than it does on Twin Earth, etc.) Again we see that the psychological state of the speaker does *not* determine the extension (*or* the 'meaning', speaking preanalytically) of the word.

Before discussing this example further, let me introduce a *non-science-fiction* example. Suppose you are like me and cannot tell an elm from a beech tree. We still say that the extension of 'elm' in my idiolect is the same as the extension of 'elm' in anyone else's, viz., the set of all elm trees, and that the set of all beech trees is the extension of 'beech' in *both* of our idiolects. Thus 'elm' in my idiolect has a different extension from 'beech' in your idiolect (as it should). Is it really credible that this difference in extension is brought about by some difference in our *concepts*? My *concept* of an elm tree is exactly the same as my concept of a beech tree (I blush to confess). (This shows that the identification of meaning 'in the sense of intension' with *concept* cannot be correct, by the way.) If someone heroically attempts to maintain that the difference

between the extension of 'elm' and the extension of 'beech' in *my* idiolect is explained by a difference in my psychological state, then we can always refute him by constructing a 'Twin Earth' example – just let the words 'elm' and 'beech' be switched on Twin Earth (the way 'aluminum' and 'molybdenum' were in the previous example). Moreover, I suppose I have a *Doppelgänger* on Twin Earth who is molecule for molecule 'identical' with me (in the sense in which two neckties can be 'identical'). If you are a dualist, then also suppose my *Doppelgänger* thinks the same verbalized thoughts I do, has the same sense data, the same dispositions, etc. It is absurd to think *his* psychological state is one bit different from mine: yet he 'means' *beech* when he says 'elm' and *I* 'mean' *elm* when I say elm. Cut the pie any way you like, 'meanings' just ain't in the *head*!

A socio-linguistic hypothesis

The last two examples depend upon a fact about language that seems, surprisingly, never to have been pointed out: that there is *division of linguistic labor*. We could hardly use such words as 'elm' and 'aluminum' if no one possessed a way of recognizing elm trees and aluminum metal; but not everyone to whom the distinction is important has to be able to make the distinction. Let us shift the example: consider *gold*. Gold is important for many reasons: it is a precious metal, it is a monetary metal, it has symbolic value (it is important to most people that the 'gold' wedding ring they wear *really* consist of gold and not just *look* gold), etc. Consider our community as a 'factory': in this 'factory' some people have the 'job' of *wearing gold wedding rings*, other people have the 'job' of *selling gold wedding rings*, still other people have the 'job' of *telling whether or not something is really gold*. It is not at all necessary or efficient that everyone who wears a gold ring (or a gold cufflink, etc.), or discusses the 'gold standard', etc., engage in buying and selling gold. Nor is it necessary or efficient that everyone who buys and sells gold be able to tell whether or not something is really gold in a society where this form of dishonesty is uncommon (selling fake gold) and in which one can easily consult an expert in case of doubt. And it is *certainly* not necessary or efficient that everyone who has occasion to buy or wear gold be able to tell with any reliability whether or not something is really gold.

The foregoing facts are just examples of mundane division of labor (in a wide sense). But they engender a division of linguistic labor: everyone to whom gold is important for any reason has to *acquire* the word 'gold'; but he does not have to acquire the *method of recognizing*