

Chapter 2

Excerpt from *The Blue and Brown Books*

Ludwig Wittgenstein

What is the meaning of a word?

Let us attack this question by asking, first, what is an explanation of the meaning of a word; what does the explanation of a word look like?

The way this question helps us is analogous to the way the question "how do we measure a length?" helps us to understand the problem "what is length?"

The questions "What is length?", "What is meaning?", "What is the number one?" etc., produce in us a mental cramp. We feel that we can't point to anything in reply to them and yet ought to point to something. (We are up against one of the great sources of philosophical bewilderment: a substantive makes us look for a thing that corresponds to it.)

Asking first "What's an explanation of meaning?" has two advantages. You in a sense bring the question "what is meaning?" down to earth. For, surely, to understand the meaning of "meaning" you ought also to understand the meaning of "explanation of meaning". Roughly: "let's ask what the explanation of meaning is, for whatever that explains will be the meaning." Studying the grammar of the expression "explanation of meaning" will teach you something about the grammar of the word "meaning" and will cure you of the temptation to look about you for some object which you might call "the meaning".

What one generally calls "explanations of the meaning of a word" can, *very roughly*, be divided into verbal and ostensive definitions. It will be seen later in what sense this division is only rough and provisional (and that it is, is an important point). The verbal definition, as it takes us from one verbal expression to another, in a sense gets us no further. In

the ostensive definition however we seem to make a much more real step towards learning the meaning.

One difficulty which strikes us is that for many words in our language there do not seem to be ostensive definitions; e.g. for such words as "one", "number", "not", etc.

Question: Need the ostensive definition itself be understood?—Can't the ostensive definition be misunderstood?

If the definition explains the meaning of a word, surely it can't be essential that you should have heard the word before. It is the ostensive definition's business to *give* it a meaning. Let us then explain the word "love" by pointing to a pencil and saying "this is love". (Instead of "this is love" I could here have said "this is called 'love'". I point this out to remove, once and for all, the idea that the words of the ostensive definition predicate something of the defined; the confusion between the sentence "this is red", attributing the colour red to something, and the ostensive definition "this is called 'red'".) Now the ostensive definition "this is love" can be interpreted in all sorts of ways. I will give a few such interpretations and use English words with well established usage. The definition then can be interpreted to mean:

"This is a pencil",
 "This is a round",
 "This is wood",
 "This is one",
 "This is hard", etc. etc.

One might object to this argument that all these interpretations presuppose another word-language. And this objection is significant if by "interpretation" we only mean "translation into a word-language".—Let me give some hints which might make this clearer. Let us ask ourselves what is our criterion when we say that someone has interpreted the ostensive definition in a particular way. Suppose I give to an Englishman the ostensive definition "this is what the Germans call 'Buch'". Then, in the great majority of cases at any rate, the English word "book" will come into the Englishman's mind. We may say he has interpreted "Buch" to mean "book". The case will be different if e.g. we point to a thing which he has never seen before and say: "This is a banjo". Possibly the word "guitar" will then come into his mind, possibly no word at all but the image of a similar instrument, possibly nothing at all. Supposing then I give him the order "now pick a banjo from amongst these things". If he

picks what we call a "banjo" we might say "he has given the word 'banjo' the correct interpretation"; if he picks some other instrument—"he has interpreted 'banjo' to mean 'string instrument'".

We say "he has given the word 'banjo' this or that interpretation", and are inclined to assume a definite act of interpretation besides the act of choosing.

Our problem is analogous to the following:

If I give someone the order "fetch me a red flower from that meadow", how is he to know what sort of flower to bring, as I have only given him a *word*?

Now the answer one might suggest first is that he went to look for a red flower carrying a red image in his mind, and comparing it with the flowers to see which of them had the colour of the image. Now there is such a way of searching, and it is not at all essential that the image we use should be a mental one. In fact the process may be this: I carry a chart co-ordinating names and coloured squares. When I hear the order "fetch me etc." I draw my finger across the chart from the word "red" to a certain square, and I go and look for a flower which has the same colour as the square. But this is not the only way of searching and it isn't the usual way. We go, look about us, walk up to a flower and pick it, without comparing it to anything. To see that the process of obeying the order can be of this kind, consider the order "imagine a red patch". You are not tempted in this case to think that *before* obeying you must have imagined a red patch to serve you as a pattern for the red patch which you were ordered to imagine.

Now you might ask: do we *interpret* the words before we obey the order? And in some cases you will find that you do something which might be called interpreting before obeying, in some cases not.

It seems that there are *certain definite* mental processes bound up with the working of language, processes through which alone language can function. I mean the processes of understanding and meaning. The signs of our language seem dead without these mental processes; and it might seem that the only function of the signs is to induce such processes, and that these are the things we ought really to be interested in. Thus, if you are asked what is the relation between a name and the thing it names, you will be inclined to answer that the relation is a psychological one, and perhaps when you say this you think in particular of the mechanism of association.—We are tempted to think that the action of language consists of two parts, an inorganic part, the handling of signs, and an organic

part, which we may call understanding these signs, meaning them, interpreting them, thinking. These latter activities seem to take place in a queer kind of medium, the mind; and the mechanism of the mind, the nature of which, it seems, we don't quite understand, can bring about effects which no material mechanism could. Thus e.g. a thought (which is such a mental process) can agree or disagree with reality; I am able to think of a man who isn't present; I am able to imagine him, 'mean him' in a remark which I make about him, even if he is thousands of miles away or dead. "What a queer mechanism," one might say, "the mechanism of wishing must be if I can wish that which will never happen".

There is one way of avoiding at least partly the occult appearance of the processes of thinking, and it is, to replace in these processes any working of the imagination by acts of looking at real objects. Thus it may seem essential that, at least in certain cases, when I hear the word "red" with understanding, a red image should be before my mind's eye. But why should I not substitute seeing a red bit of paper for imagining a red patch? The visual image will only be the more vivid. Imagine a man always carrying a sheet of paper in his pocket on which the names of colours are co-ordinated with coloured patches. You may say that it would be a nuisance to carry such a table of samples about with you, and that the mechanism of association is what we always use instead of it. But this is irrelevant; and in many cases it is not even true. If, for instance, you were ordered to paint a particular shade of blue called "Prussian Blue", you might have to use a table to lead you from the word "Prussian Blue" to a sample of the colour, which would serve you as your copy.

We could perfectly well, for our purposes, replace every process of imagining by a process of looking at an object or by painting, drawing or modelling; and every process of speaking to oneself by speaking aloud or by writing.

Frege ridiculed the formalist conception of mathematics by saying that the formalists confused the unimportant thing, the sign, with the important, the meaning. Surely, one wishes to say, mathematics does not treat of dashes on a bit of paper. Frege's idea could be expressed thus: the propositions of mathematics, if they were just complexes of dashes, would be dead and utterly uninteresting, whereas they obviously have a kind of life. And the same, of course, could be said of any proposition: Without a sense, or without the thought, a proposition would be an utterly dead and trivial thing. And further it seems clear that no adding of inorganic signs can make the proposition live. And the conclusion which one draws from

this is that what must be added to the dead signs in order to make a live proposition is something immaterial, with properties different from all mere signs.

But if we had to name anything which is the life of the sign, we should have to say that it was its use.

If the meaning of the sign (roughly, that which is of importance about the sign) is an image built up in our minds when we see or hear the sign, then first let us adopt the method we just described of replacing this mental image by some outward object seen, e.g. a painted or modelled image. Then why should the written sign plus this painted image be alive if the written sign alone was dead?—In fact, as soon as you think of replacing the mental image by, say, a painted one, and as soon as the image thereby loses its occult character, it ceases to seem to impart any life to the sentence at all. (It was in fact just the occult character of the mental process which you needed for your purposes.)

The mistake we are liable to make could be expressed thus: We are looking for the use of a sign, but we look for it as though it were an object co-existing with the sign. (One of the reasons for this mistake is again that we are looking for a "thing corresponding to a substantive".)

The sign (the sentence) gets its significance from the system of signs, from the language to which it belongs. Roughly: understanding a sentence means understanding a language.

As a part of the system of language, one may say, the sentence has life. But one is tempted to imagine that which gives the sentence life as something in an occult sphere, accompanying the sentence. But whatever accompanied it would for us just be another sign.

It seems at first sight that that which gives to thinking its peculiar character is that it is a train of mental states, and it seems that what is queer and difficult to understand about thinking is the processes which happen in the medium of the mind, processes possible only in this medium. The comparison which forces itself upon us is that of the mental medium with the protoplasm of a cell, say, of an amoeba. We observe certain actions of the amoeba, its taking food by extending arms, its splitting up into similar cells, each of which grows and behaves like the original one. We say "of what a queer nature the protoplasm must be to act in such a way", and perhaps we say that no physical mechanism could behave in this way, and that the mechanism of the amoeba must be of a totally different kind. In the same way we are tempted to say "the mechanism of the mind must be of a most peculiar kind to be able to do what

the mind does". But here we are making two mistakes. For what struck us as being queer about thought and thinking was not at all that it had curious effects which we were not yet able to explain (causally). Our problem, in other words, was not a scientific one; but a muddle felt as a problem.

Supposing we tried to construct a mind-model as a result of psychological investigations, a model which, as we should say, would explain the action of the mind. This model would be part of a psychological theory in the way in which a mechanical model of the ether can be part of a theory of electricity. (Such a model, by the way, is always part of the *symbolism* of a theory. Its advantage may be that it can be taken in at a glance and easily held in the mind. It has been said that a model, in a sense, dresses up the pure theory; that the *naked* theory is sentences or equations. This must be examined more closely later on.)

We may find that such a mind-model would have to be very complicated and intricate in order to explain the observed mental activities; and on this ground we might call the mind a queer kind of medium. But this aspect of the mind does not interest us. The problems which it may set are psychological problems, and the method of their solution is that of natural science.

Now if it is not the causal connections which we are concerned with, then the activities of the mind lie open before us. And when we are worried about the nature of thinking, the puzzlement which we wrongly interpret to be one about the nature of a medium is a puzzlement caused by the mystifying use of our language. This kind of mistake recurs again and again in philosophy; e.g. when we are puzzled about the nature of time, when time seems to us a *queer thing*. We are most strongly tempted to think that here are things hidden, something we can see from the outside but which we can't look into. And yet nothing of the sort is the case. It is not new facts about time which we want to know. All the facts that concern us lie open before us. But it is the use of the substantive "time" which mystifies us. If we look into the grammar of that word, we shall feel that it is no less astounding that man should have conceived of a deity of time than it would be to conceive of deity of negation or disjunction.

It is misleading then to talk of thinking as of a "mental activity". We may say that thinking is essentially the activity of operating with signs. This activity is performed by the hand, when we think by writing; by the mouth and larynx, when we think by speaking; and if we think by imagining signs or pictures, I can give you no agent that thinks. If then you say

that in such cases the mind thinks, I would only draw your attention to the fact that you are using a metaphor, that here the mind is an agent in a different sense from that in which the hand can be said to be the agent in writing.

If again we talk about the locality where thinking takes place we have a right to say that this locality is the paper on which we write or the mouth which speaks. And if we talk of the head or the brain as the locality of thought, this is using the expression "locality of thinking" in a different sense. Let us examine what are the reasons for calling the head the place of thinking. It is not our intention to criticize this form of expression, to show that it is not appropriate. What we must do is: understand its working, its grammar, e.g. see what relation this grammar has to that of the expression "we think with our mouth", or "we think with a pencil on a piece of paper".

Perhaps the main reason why we are so strongly inclined to talk of the head as the locality of our thoughts is this: the existence of the words "thinking" and "thought" alongside of the words denoting (bodily) activities, such as writing, speaking, etc., makes us look for an activity, different from these but analogous to them, corresponding to the word "thinking". When words in our ordinary language have *prima facie* analogous grammars we are inclined to try to interpret them analogously; i.e. we try to make the analogy hold throughout.—We say, "The thought is not the same as the sentence; for an English and a French sentence, which are utterly different, can express the same thought". And now, as the sentences are *somewhere*, we look for a place for the thought. (It is as though we looked for the place of the king of which the rules of chess treat, as opposed to the places of the various bits of wood, the kings of the various sets.)—We say, "surely the thought is *something*; it is not nothing"; and all one can answer to this is, that the word "thought" has its *use*, which is of a totally different kind from the use of the word "sentence".

Now does this mean that it is nonsensical to talk of a locality where thought takes place? Certainly not. This phrase has sense if we give it sense. Now if we say "thought takes place in our heads", what is the sense of this phrase soberly understood? I suppose it is that certain physiological processes correspond to our thoughts in such a way that if we know the correspondence we can, by observing these processes, find the thoughts. But in what sense can the physiological processes be said to correspond to thoughts, and in what sense can we be said to get the thoughts from the observation of the brain?

I suppose we imagine the correspondence to have been verified experimentally. Let us imagine such an experiment crudely. It consists in looking at the brain while the subject thinks. And now you may think that the reason why my explanation is going to go wrong is that of course the experimenter gets the thoughts of the subject only *indirectly* by being told them, the subject *expressing* them in some way or other. But I will remove this difficulty by assuming that the subject is at the same time the experimenter, who is looking at his own brain, say by means of a mirror. (The crudity of this description in no way reduces the force of the argument.)

Then I ask you, is the subject-experimenter observing one thing or two things? (Don't say that he is observing one thing both from the inside and from the outside; for this does not remove the difficulty. We will talk of inside and outside later.) The subject-experimenter is observing a correlation of two phenomena. One of them he, perhaps, calls the *thought*. This may consist of a train of images, organic sensations, or on the other hand of a train of the various visual, tactual and muscular experiences which he has in writing or speaking a sentence.—The other experience is one of seeing his brain work. Both these phenomena could correctly be called “expressions of thought”; and the question “where is the thought itself?” had better, in order to prevent confusion, be rejected as nonsensical. If however we do use the expression “the thought takes place in the head”, we have given this expression its meaning by describing the experience which would justify the *hypothesis* that the thought takes places in our heads, by describing the experience which we wish to call “observing thought in our brain”.

We easily forget that the word “locality” is used in many different senses and that there are many different kinds of statements about a thing which in a particular case, in accordance with general usage, we may call specifications of the locality of the thing. Thus it has been said of visual space that its place is in our head; and I think one has been tempted to say this, partly, by a grammatical misunderstanding.

I can say: “in my visual field I see the image of the tree to the right of the image of the tower” or “I see the image of the tree in the middle of the visual field”. And now we are inclined to ask “and where do you see the visual field?” Now if the “where” is meant to ask for a locality in the sense in which we have specified the locality of the image of the tree, then I would draw your attention to the fact that you have not yet given this question sense; that is, that you have been proceeding by a grammatical analogy without having worked out the analogy in detail.

In saying that the idea of our visual field being located in our brain arose from a grammatical misunderstanding, I did not mean to say that we could not give sense to such a specification of locality. We could, e.g., easily imagine an experience which we should describe by such a statement. Imagine that we looked at a group of things in this room, and, while we looked, a probe was stuck into our brain and it was found that if the point of the probe reached a particular point in our brain, then a particular small part of our visual field was thereby obliterated. In this way we might co-ordinate points of our brain to points of the visual image, and this might make us say that the visual field was seated in such and such a place in our brain. And if now we asked the question “Where do you see the image of this book?” the answer could be (as above) “To the right of that pencil”, or “In the left hand part of my visual field”, or again: “Three inches behind my left eye”.

But what if someone said “I can assure you I feel the visual image to be two inches behind the bridge of my nose”;—what are we to answer him? Should we say that he is not speaking the truth, or that there cannot be such a feeling? What if he asks us “do you know all the feelings there are? How do you know there isn't such a feeling?”

What if the diviner tells us that when he holds the rod he *feels* that the water is five feet under the ground? or that he *feels* that a mixture of copper and gold is five feet under the ground? Suppose that to our doubts he answered: “You can estimate a length when you see it. Why shouldn't I have a different way of estimating it?”

If we understand the idea of such an estimation, we shall get clear about the nature of our doubts about the statements of the diviner, and of the man who said he felt the visual image behind the bridge of his nose.

There is the statement: “this pencil is five inches long”, and the statement, “I feel that this pencil is five inches long”, and we must get clear about the relation of the grammar of the first statement to the grammar of the second. To the statement “I feel in my hand that the water is three feet under the ground” we should like to answer: “I don't know what this *means*”. But the diviner would say: “Surely you know what it means. You know what ‘three feet under the ground’ means, and you know what ‘I feel’ means!” But I should answer him: I know what a word means *in certain contexts*. Thus I understand the phrase, “three feet under the ground”, say, in the connections “The measurement has shown that the water runs three feet under the ground”, “If we dig three feet deep we are going to strike water”, “The depth of the water is three feet by the eye”. But the

use of the expression "a feeling in my hands of water being three feet under the ground" has yet to be explained to me.

We could ask the diviner "how did you learn the meaning of the word 'three feet'?" We suppose by being shown such lengths, by having measured them and such like. Were you also taught to talk of a feeling of water being three feet under the ground, a feeling, say, in your hands? For if not, what made you connect the word 'three feet' with a feeling in your hand?" Supposing we had been estimating lengths by the eye, but had never spanned a length. How could we estimate a length in inches by spanning it? I.e., how could we interpret the experience of spanning in inches? The question is: what connection is there between, say, a tactual sensation and the experience of measuring a thing by means of a yard rod? This connection will show us what it means to 'feel that a thing is six inches long'. Supposing the diviner said "I have never learnt to correlate depth of water under the ground with feelings in my hand, but when I have a certain feeling of tension in my hands, the words 'three feet' spring up in my mind." We should answer "This is a perfectly good explanation of what you mean by 'feeling the depth to be three feet', and the statement that you feel this will have neither more, nor less, meaning than your explanation has given it. And if experience shows that the actual depth of the water always agrees with the words 'n feet' which come into your mind, your experience will be very useful for determining the depth of water".—But you see that the meaning of the words "I feel the depth of the water to be n feet" had to be explained; it was not known when the meaning of the words "n feet" in the ordinary sense (i.e. in the ordinary contexts) was known.—We don't say that the man who tells us he feels the visual image two inches behind the bridge of his nose is telling a lie or talking nonsense. But we say that we don't understand the meaning of such a phrase. It combines well-known words, but combines them in a way we don't yet understand. The grammar of this phrase has yet to be explained to us.

The importance of investigating the diviner's answer lies in the fact that we often think we have given a meaning to a statement P if only we assert "I feel (or I believe) that P is the case." (We shall talk at a later occasion of Prof. Hardy saying that Goldbach's theorem is a proposition because he can believe that it is true.) We have already said that by merely explaining the meaning of the words "three feet" in the usual way we have not yet explained the sense of the phrase "feeling that water is three feet etc." Now we should not have felt these difficulties had the diviner said

that he had *learned* to estimate the depth of the water, say, by digging for water whenever he had a particular feeling and in this way correlating such feelings with *measurements* of depth. Now we must examine the relation of the process of *learning* to *estimate* with the act of estimating. The importance of this examination lies in this, that it applies to the relation between learning the meaning of a word and making use of the word. Or, more generally, that it shows the different possible relations between a rule given and its application.

Let us consider the process of estimating a length by the eye: It is extremely important that you should realise that there are a great many different processes which we call "estimating by the eye".

Consider these cases:

- (1) Someone asks "How did you estimate the height of this building?" I answer: "It has four storeys; I suppose each storey is about fifteen feet high; so it must be about sixty feet."
- (2) In another case: "I roughly know what a yard at that distance looks like; so it must be about four yards long."
- (3) Or again: "I can imagine a tall man reaching to about this point; so it must be about six feet above the ground."
- (4) Or: "I don't know; it just looks like a yard."

This last case is likely to puzzle us. If you ask "what happened in this case when the man estimated the length?" the correct answer may be: "he *looked* at the thing and *said* 'it looks one yard long'". This may be all that has happened.

We said before that we should not have been puzzled about the diviner's answer if he had told us that he had *learned* how to estimate depth. Now learning to estimate may, broadly speaking, be seen in two different relations to the act of estimating: either as a cause of the phenomenon of estimating, or as supplying us with a rule (a table, a chart, or some such thing) which we make use of when we estimate.

Supposing I teach someone the use of the word "yellow" by repeatedly pointing to a yellow patch and pronouncing the word. On another occasion I make him apply what he has learnt by giving him the order, "choose a yellow ball out of this bag". What was it that happened when he obeyed my order? I say "possibly just this: he heard my words and took a yellow ball from the bag". Now you may be inclined to think that this couldn't possibly have been all; and the *kind* of thing that you would suggest is that he imagined something yellow when he *understood* the

order, and then chose a ball according to his image. To see that this is not *necessary* remember that I could have given him the order, "Imagine a yellow patch". Would you still be inclined to assume that he first imagines a yellow patch, just *understanding* my order, and then imagines a yellow patch to match the first? (Now I don't say that this is not possible. Only, putting it in this way immediately shows you that it need not happen. This, by the way, illustrates the method of philosophy.)

If we are taught the meaning of the word "yellow" by being given some sort of ostensive definition (a rule of the usage of the word) this teaching can be looked at in two different ways.

A. The teaching is a drill. This drill causes us to associate a yellow image, yellow things, with the word "yellow". Thus when I gave the order "Choose a yellow ball from this bag" the word "yellow" might have brought up a yellow image, or a feeling of recognition when the person's eye fell on the yellow ball. The drill of teaching could in this case be said to have built up a psychical mechanism. This, however, would only be a hypothesis or else a metaphor. We could *compare* teaching with installing an electric connection between a switch and a bulb. The parallel to the connection going wrong or breaking down would then be what we call forgetting the explanation, or the meaning, of the word. (We ought to talk further on about the meaning of "forgetting the meaning of a word").

In so far as the teaching brings about the association, feeling of recognition, etc. etc., it is the *cause* of the phenomena of understanding, obeying, etc.; and it is a hypothesis that the process of teaching should be needed in order to bring about these effects. It is conceivable, in this sense, that *all* the processes of understanding, obeying, etc., should have happened without the person ever having been taught the language. (This, just now, seems extremely paradoxical.)

B. The teaching may have supplied us with a rule which is itself involved in the processes of understanding, obeying, etc.; "involved", however, meaning that the expression of this rule forms part of these processes.

We must distinguish between what one might call "a process being in accordance with a rule", and, "a process involving a rule" (in the above sense).

Take an example. Some one teaches me to square cardinal numbers; he writes down the row

1 2 3 4,

and asks me to square them. (I will, in this case again, replace any processes happening 'in the mind' by processes of calculation on the paper.) Suppose, underneath the first row of numbers, I then write:

1 4 9 16.

What I wrote is in accordance with the general rule of squaring; but it obviously is also in accordance with any number of other rules; and amongst there it is not more in accordance with one than with another. In the sense in which before we talked about a rule being involved in a process, *no* rule was involved in this. Supposing that in order to get to my results I calculated 1×1 , 2×2 , 3×3 , 4×4 (that is, in this case wrote down the calculations); there would again be in accordance with any number of rules. Supposing, on the other hand, in order to get to my results I had written down what you may call "the rule of squaring", say algebraically. In this case this rule was involved in a sense in which no other rule was.

We shall say that the rule is *involved* in the understanding, obeying, etc., if, as I should like to express it, the symbol of the rule forms part of the calculation. (As we are not interested in where the processes of thinking, calculating, take place, we can for our purpose imagine the calculations being done entirely on paper. We are not concerned with the difference: internal, external.)

A characteristic example of the case B would be one in which the teaching supplied us with a table which we actually make use of in understanding, obeying, etc. If we are taught to play chess, we may be taught rules. If then we play chess, these rules need not be involved in the act of playing. But they may be. Imagine, e.g., that the rules were expressed in the form of a table; in one column the shapes of the chessmen are drawn, and in a parallel column we find diagrams showing the 'freedom' (the legitimate moves) of the pieces. Suppose now that the way the game is played involves making the transition from the shape to the possible moves by running one's finger across the table, and then making one of these moves.

Teaching as the hypothetical history of our subsequent actions (understanding, obeying, estimating a length, etc.) drops out of our considerations. The rule which has been taught and is subsequently applied interests us only so far as it is involved in the application. A rule, so far as it interests us, does not act at a distance.

Suppose I pointed to piece of paper and said to someone: "this colour I call 'red'". Afterwards I give him the order: "now paint me a red patch". I then ask him: "why, in carrying out my order, did you paint just this colour?" His answer could then be: "This colour (pointing to the sample which I have given him) was called red; and the patch I have painted has, as you see, the colour of the sample". He has now given me a reason for carrying out the order in the way he did. Giving a reason for something one did or said means showing a way which leads to this action. In some cases it means telling the way which one has gone oneself; in others it means describing a way which leads there and is in accordance with certain accepted rules. Thus when asked, "why did you carry out my order by painting just this colour?" the person could have described the way he had actually taken to arrive at this particular shade of colour. This would have been so if, hearing the word "red", he had taken up the sample I had given him, labelled "red", and had *copied* that sample when painting the patch. On the other hand he might have painted it 'automatically' or from a memory image, but when asked to give the reason he might still point to the sample and show that it matched the patch he had painted. In this latter case the reason given would have been of the second kind, i.e. a justification *post hoc*.

Now if one thinks that there could be no understanding and obeying the order without a previous teaching, one thinks of the teaching as supplying a *reason* for doing what one did; as supplying the road one walks. Now there is the idea that if an order is understood and obeyed there must be a reason for our obeying it as we do; and, in fact, a chain of reasons reaching back to infinity. This is as if one said: "Wherever you are, you must have got there from somewhere else, and to that previous place from another place; and so on *ad infinitum*". (If, on the other hand, you had said, "wherever you are, you *could* have got there from another place ten yards away; and to that other place from a third, ten yards further away, and so on *ad infinitum*", if you had said this you would have stressed the infinite *possibility* of making a step. Thus the idea of an infinite chain of reasons arises out of a confusion similar to this: that a line of a certain length consists of an infinite number of parts because it is indefinitely divisible; i.e., because there is no end to the possibility of dividing it.)

If on the other hand you realize that the chain of *actual* reasons has a beginning, you will no longer be revolted by the idea of a case in which there is *no* reason for the way you obey the order. At this point, however,

another confusion sets in, that between reason and cause. One is led into this confusion by the ambiguous use of the word "why". Thus when the chain of reasons has come to an end and still the question "why?" is asked, one is inclined to give a cause instead of a reason. If, e.g., to the question, "why did you paint just this colour when I told you to paint a red patch?" you give the answer: "I have been shown a sample of this colour and the word 'red' was pronounced to me at the same time; and therefore this colour now always comes to my mind when I hear the word 'red'", then you have given a cause for your action and not a reason.

The proposition that your action has such and such a cause, is a hypothesis. The hypothesis is well-founded if one has had a number of experiences which, roughly speaking, agree in showing that your action is the regular sequel of certain conditions which we then call causes of the action. In order to know the reason which you had for making a certain statement, for acting in a particular way, etc., no number of agreeing experiences is necessary, and the statement of your reason is not a hypothesis. The difference between the grammars of "reason" and "cause", is quite similar to that between the grammars of "motive" and "cause". Of the cause one can say that one can't *know* it but can only *conjecture* it. On the other hand one often says: "Surely I must know why I did it" talking of the *motive*. When I say: "we can only *conjecture* the cause but we *know* the motive" this statement will be seen later on to be a grammatical one. The "can" refers to a *logical* possibility.

The double use of the word "why", asking for the cause and asking for the motive, together with the idea that we can know, and not only conjecture, our motives, gives rise to the confusion that a motive is a cause of which we are immediately aware, a cause 'seen from the inside', or a cause experienced.—Giving a reason is like giving a calculation by which you have arrived at a certain result.

Let us go back to the statement that thinking essentially consists in operating with signs. My point was that it is liable to mislead us if we say 'thinking is a mental activity'. The question what kind of an activity thinking is is analogous to this: "Where does thinking take place?" We can answer: on paper, in our head, in the mind. None of these statements of locality gives the locality of thinking. The use of all these specifications is correct, but we must not be misled by the similarity of their linguistic form into a false conception of their grammar. As, e.g., when you say: "Surely, the *real* place of thought is in our head". The same applies to the idea of thinking as an activity. It is correct to say that thinking is an

activity of our writing hand, of our larynx, of our head, and of our mind, so long as we understand the grammar of these statements. And it is, furthermore, extremely important to realize how, by misunderstanding the grammar of our expressions, we are led to think of one in particular of these statements as giving the *real* seat of the activity of thinking.

There is an objection to saying that thinking is some such thing as an activity of the hand. Thinking, one wants to say, is part of our 'private experience'. It is not material, but an event in private consciousness. This objection is expressed in the question: "Could a machine think?" I shall talk about this at a later point, and now only refer you to an analogous question: "Can a machine have toothache?" You will certainly be inclined to say: "A machine can't have toothache". All I will do now is to draw your attention to the use which you have made of the word "can" and to ask you: "Did you mean to say that all our past experience has shown that a machine never had toothache?" The impossibility of which you speak is a logical one. The question is: What is the relation between thinking (or toothache) and the subject which thinks, has toothache, etc.? I shall say no more about this now.

If we say thinking is essentially operating with signs, the first question you might ask is: "What are signs?"—Instead of giving any kind of general answer to this question, I shall propose to you to look closely at particular cases which we should call "operating with signs". Let us look at a simple example of operating with words. I give someone the order: "fetch me six apples from the grocer", and I will describe a way of making use of such an order: The words "six apples" are written on a bit of paper, the paper is handed to the grocer, the grocer compares the word "apple" with labels on different shelves. He finds it to agree with one of the labels, counts from 1 to the number written on the slip of paper, and for every number counted takes a fruit off the shelf and puts it in a bag.—And here you have a case of the use of words. I shall in the future again and again draw your attention to what I shall call language games. These are ways of using signs simpler than those in which we use the signs of our highly complicated everyday language. Language games are the forms of language with which a child begins to make use of words. The study of language games is the study of primitive forms of language or primitive languages. If we want to study the problems of truth and falsehood, of the agreement and disagreement of propositions with reality, of the nature of assertion, assumption, and question, we shall with great advantage look at primitive forms of language in which these forms of thinking appear

without the confusing background of highly complicated processes of thought. When we look at such simple forms of language the mental mist which seems to enshroud our ordinary use of language disappears. We see activities, reactions, which are clear-cut and transparent. On the other hand we recognize in these simple processes forms of language not separated by a break from our more complicated ones. We see that we can build up the complicated forms from the primitive ones by gradually adding new forms.