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The Agent and His World[1]

1. We may define a concept *world*, or *our world*, on the basis of our operations in the world, such that to exist in our world is to be connected with our operations in the world, and such that the form of connection gives *the form of existence*. In this way, for example, being *material*, as in "raw material", is a form of existence. Nothing is material unless we define it as material through our operations on it, and something is material only if it is the object of an operation of the form: to process it with the aim of making something out of it. Being an *implement* is another form of existence. Nothing is an implement unless we define it as an implement through our operations with it, and something is an implement in the strict sense only if it settles an operator place in an operation on some material, and also defines an operation which would not exist without that implement or its equivalent. It follows that an implement can also define as material something that would not exist as material without it.

There is no simple relation between, for example, our manual operations without an implement and our manual operations with an implement. We cannot, for example, define a given implement through a given transformation from an implementless operation O_i to a implement operation O_j, except perhaps for operations where the implements serves only to

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In this article, I close the space of my analysis to the *production* of an artefact, within the framework of a given technology. The agent is alone and neither he nor the implements and materials he works with are given any history. And the product is not given away, nor is it traded off or sold for cash, and no use is described for it. There is no room for any of this, the way the space of analysis has been set up. (My article "Theaitetos' wagon" may be read as an analysis of how concepts about *the use* of an article are built into the concepts of the production of the same article.)

A possible next step is to let the space of analysis remain closed to the production, but to let the main example be an operation which demands the co-ordinated operation of two agents, and such that the co-ordination demands a little bit of talking between the two. That will give us a system of operations with speech and interaction built into the very production of an artefact. It is from *work situations* that we can best learn what *the form,* or *the forms,* of a situation is. And it is from *work situations with speech* that we can best learn both about how our concepts are embedded in our practical activities and about the pragmatics of speech, that is, about what it is that requires who to say what to whom and when. (There is some discussion of this in my "Note on language-games".)

After that, the space of analysis should be opened up to make room for an intelligible exchange of products. There are as many ways of doing this as there are different economies. And we shall find (reasons to say) that the same work is the same work only within the same economy.

This is one of the projects "The agent and his world" can be placed in.

A somewhat different project, is to use the concepts and forms of "The agent and his world" as a grammar, or partial grammar, for the description of work and work situations and of their respective worlds. The Norwegian sociologist and philosopher *Jens-Ivar Nergård* has done just that, in his analyses of different cases of what is called "deviant behaviour". In each of his analyses, he argues that the behaviour in question makes perfectly good sense, given the practical circumstances of the deviant. It is in his analysis of those practical circumstances that the grammar of "The agent and his world" is made operative.

This grammar can also be read as an instruction about what to fill in, when you want to explain some individual concept of work or action to someone – or some concept whose explanation demands that you explain some individual concepts of work and action, such as individual concepts of tools or implements, of forms of technical or economic organisation, etc. That is its most obvious practical application.

intensify the same implementless operation- as, for example, if instead of striking just with my fist, I strike with a stone in my hand. Ordinarily, Oi is non-existent as an independent operation. Consider, for example, a man who is chopping firewood with an axe. Imagine then that we take away the axe, but that otherwise we make no changes. What we are left with, is not an implementless operation, but an unintelligible gesture. The implement is in this sense internal to the operation. It is clear that he who chops wood wields an axe and that he who saws wood wields a saw. But there is no operation built in here which is his operation *on the axe* or *on the saw*, independently of his chopping wood or sawing wood, that is, of his operation on the logs.[2]

To be *money* is a form of existence, and so is being *merchandise*, or a *commodity*. To investigate the form of existence of money is, according to my definition, to investigate its place in our practices. And that is to chart those operations that money makes possible and those operations it saves us from – but not in the way that we imagine money removed from our own economy in order to chart the differences between the two systems. For what we are left with then does not amount to a possible system. What we can do, is to construct models of different economic arrangements without money, and then investigate what transformations of the models are made possible if we introduce money, or objects which can more or less serve as money in our sense of money. Investigations in economic anthropology may well be read as investigations of different worlds and of different forms of existence.

Being a *material object* is a form of existence. It is what we operate on or with – under the most formal description of it and of our operations on or with it (as in, e.g., "He moved the thing"). But what makes a lump of clay into material, a hammer into a tool, or a piece of metal into a coin, is not that they are material objects. We are therefore saying very little about the form of existence coins have, if we say that they are material objects. We say a lot more if we just say that they take up little room and stand wear and tear, because that has quite a strong connection with their place in our practices. And that is what we must analyse, if we want to analyse their form of existence.

By our *practices* I mean the totality of our forms of operation, with their tautological objects, implements, etc., or forms of objects, forms of implements, etc. I also think of this totality as ordered. *Our world* is, in one sense, that which is constituted through our practices, with objects of such forms of existence as, for example, materials, implements, money, calculations, pictures, etc.; and in another sense it is our very practices.[3] Every single object

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[2]When the man is cleaving logs with an axe, the axe is internal to that operation. That is, the operation that constitutes μ as that implement is itself constituted as that operation by its being an operation with μ. For that reason, when the man, in the course of chopping firewood, is cleaving one of the logs, this operation has no components that are themselves operations.

When I am cleaving a log, I am not *really* or *simply* moving my arms in such and such a way, while holding on to the axe, with the effect that the axe is also moving in such and such a way, with the effect that the log is cleaved. The log is cleaved because of my cleaving it. But I did not cleave it because of the way in which I moved my arms (axe in hand and the log in front of me). If we are to construe a casual chain here, we must let it travel the other way: *from* my cleaving the log *to* my wielding the axe in the way I wield it when I am cleaving a log, and *from* my wielding the axe in that way *to* my moving my arms in the way I move them when I am wielding the axe in the way I wield it when I am cleaving a log (in which way I am not able to move them if I am not cleaving a log).

[3]It is only within the realm of our practices that our world exists as an intelligible world.

But also, it is only within the realm of our world that our practices exist as intelligible practices. Without sawing there are no saws, and without saws there is no sawing. Without buying and selling there is no money, and without money there is no buying and selling. Without speaking there are no words, and without words there is no speaking. There is a history here, where the constituting of the one reconstitutes the other.

in the world gets its identity, or its form, from its form of connection with one or many of our forms of operation, and every form of operation gets its identity from its place within a cluster of such forms, and, in the end, from its place within the totality of our forms of operation. With such a picture of what it is that we investigate, when we investigate the form of existence of something, be it an object or an operation, I am, I suppose, obliged to declare in advance every possible outcome of such an investigation to be in principle incomplete. It is incomplete, not only because it can only give us a part of some larger whole, where the part is always a cluster of practices, within a household, a community, etc., but also because the part cannot be made to fit the larger whole without itself being remodelled or redescribed – we do not know how, because we do not know the whole. (A coin demands a state, or something like it, for its existence. What does the state demand?)

These remarks about *our world* are meant to sketch a framework for my investigations of the agent and his world. What I shall try to do, is to identify the smallest possible cut of our world that necessarily belongs to a single, practical operation, or the smallest intelligible ordering within which such an operation is intelligible.

2. The basic form of a practical operation is: *x operates on y*, where "x" marks the place of the agent, or the subject of the operation, "y" the object of the operation, or its target, and where the verb "operate", or "operate on", is a stand-in for some suitable verb of action. When a man chops firewood, the operation is chopping firewood, while the object of the operation is the log he is busy splitting. In this example, the concept of what you operate *on* is built into the concept of the *operation*. We may say that the log is the tautologous object of the operation *chopping firewood*. (Instead of "tautologous object" we may say "proper object".)

The tautologous object of picking berries, are berries or shrubs with berries on them, depending on how the operation is analysed. They are berries pure and simple if we do not distinguish between picking berries and picking berries that others have picked, as, for example, when I pick them out of someone else's bucket. If we do distinguish, they are shrubs with berries on them. When the jib-crew tightens the jib, the tautologous object of this operation is the jib, even though this object, and this operation on it, is a not independent part of a larger structure, the-sailboat-with-its-complement in action. Thatching the roof is a bit more complicated, since here we have both proper objects, proper places, and proper positions. The tautologous object of eating is what you eat, that is, what you chew and swallow, and the tautologous object of drinking, is what you drink. (There is a lot more to eating and drinking than the transporting of stuff from table to stomach, but that is another story, part of which belongs to theology.)[4]

2.1 To the operation of chopping firewood there belong, not only the movements of the man's arms and body, which we may call the *choreography* of the operation, but also the logs that he is splitting and the axe that he wields in splitting them. Without the axe and the logs, we shall not only not have this action, we shall not have this choreography either.

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[4]The character of what we operate *on* depends on the character of the practices *within which* we operate on it (i.e. of the world in which the object is placed). The table where the household takes its meals is one of the two or three main *places* within the household. We speak of the sharing of meals as *sharing the table,* and there are deep connections between commensality and communion.
I see no reason why the form of existence of *meals* (within a given community) should not be of as much concern to philosophy as the form of existence of *works of art (*say of icons within some Greek orthodox community) or the form of existence of *numbers* (say within a community with only natural numbers (and with counting as the only operation with them)).

To the operation of chopping firewood there also belongs *the point of it* – which his next steps may show us, as when he takes an armful of the chopped pieces into the kitchen and places a few of them in the stove, where he gets them burning. To get the fire burning, in the stove or in equivalent places, may be called the *tautlogous point* of *chopping firewood*. The tautologous point of *splitting a log* is just to get it split. What is called *the point* of one operation, is sometimes the tautologous point of some superordinate operation.

When the operation of splitting a log is subordinate to, or built into, the operation of chopping firewood, a measure of what is to count as adequately sized pieces is built into the operation of splitting the log. This measure derives, in part, from the size of the stove. If the man splits the log into pieces that are much too large for the stove, or if he splits it into slivers as thin and tiny as can be done with an axe, he is not chopping firewood. In this way, and in other ways, the contingencies of the world creep into the concept of the operation.

2.2 One form of operating on an object, is to move it. Another form is to work on it so as to turn it into some other object, that is, into some object whose place within our practices is a different one from that of the original object. A typical transformation is from some piece of material to some article of use. The two forms of the form *x operates on y* may be written as *x moves y* and *x transforms y*. When x moves y, this can be thought of as moving it from one place to another, or as moving it over a continuum of places, or both, and the operation can be done with the hands only or with some implement of transportation, such as a ship or a fork. When x transforms y, that is, operates on y so as to turn it into z, y may be a single object or a collection of objects. An example of the first is when x works on a lump of clay to make a pot out of it, and an example of the second is when x makes a bicycle from the collection of its parts by joining them together in their proper order.

When I remove some books from my desk, to clear it for writing, and put them into their proper places in the bookshelf, this can be thought of as the joining of two sets of operations. The point of the first is to remove the books from the desk, to clear it, and the form of the operation is to move the object *from some definite place x to some other place z* (from the table to some place not on the table). The point of the second is to put the books into their proper places, where I can find them, and the form of this operation is, for each book, *to move it from some place w to some definite place ß* (from some place not in the bookshelf to its place in the bookshelf). Stripped of their setting and of their points, what I do, each time, is *to move an object from one place to another,* where the places are to be thought of as the two end points of the transporting, and not, e.g., as places where the thing belongs or does not belong. But this moving is not what my action *really comes down to,* not any more than telling that Tromsø is north of Bodø really comes down to saying something of the form xRy. The form of an action is part of its grammar. It is not what the action really comes down to.

2.3 The form *to transform a collection of objects into an ordered structure,* which is the form of the joiner's work, the form *to move an object from some place w to some definite place ß*, which is the form of each of the joiner's operations of joining, etc., are, each of them, of the form *to operate on y,* or, with the agent brought in, of the form *x operates on y*. On this understanding of that form, or scheme, we may define a *practical operation* as an operation which either is itself of this form or is built into an operation of this form, as when two men are going to lift a beam together and one explains to the other how he can get the best grip. The superordinate operation is to lift the beam, and it is this operation that gives the explanation its form of being an *explanation*. He says, e.g., "A little further back". When the architect explains to the carpenter how this mansard roof is to be built, and produces a

drawing of the construction while doing so, then making that drawing is also a practical operation. Etc.

By *"operation"* I mean, in this article, a practical operation, whether the agent is a single man or a team. But I shall limit my examples to one-man operations. A one-man operation, also, gets its point and its intelligibility, and thereby its existence as *that* operation, from its place within some ordered cluster of practices, such as those of a household, or a workshop, and, in turn, from *their* place within the community or the society as a whole. But I shall not make the place or the ordering of the places into a topic. Not here.

3. If an operation has a tautologous object, we have not identified the operation if we have not identified the object. Briefly and roughly, what is essential to our operations is not that we move, with or without mental correlates, but that we move *with respect to a world*.. The distinction between standing bent over, with the right hand moving hither and thither, and picking berries, is not that the latter is the first plus intention. It is the berries that make the difference. The berry-picker does not just stand bent over, he stands bent over amidst the blueberry plants; and he does not move his right hand hither and thither, he moves it from plant to bucket and back again, that is, he picks a suitable handful of berries, empties the berries into the bucket, and picks more.[5]

Note that the operation is called after a particular one of its parts, that of working the berries loose from the stalk. It does not follow from this that that is everything there is to the concept of picking berries. For example, working them loose to drop on the ground, is not picking berries. But there is no reason either to count on the concept's having a definite boundary. The operation has a place within an economy, and it is that which gives it its identity and makes it *that* operation. It can have one identity within one economy and another within another. What berries you pick and the place of berry picking is not the same within the household economy of a North Norwegian island community of fishermen-and-small-scale-farmers as it is within the nomadic economy of the reindeer herding Lapps of the North Norwegian highlands. That is to say, the operation can change its identity from one economy to another, much as a piece can change its identity from one game to another.

I have not said that the berry-picker *s e e s* the berries, or that he *knows* what he is busy at. That is built into the form of the description. I have described his landscape just as we describe ours and what he does there just as we describe what we ourselves do. I have not raised the question whether the berry-picker is a machine, or a human being with a different construction of the world from our own. There is no place for such a question when the berry-picker operates in his own landscape and operates in it in just the way people picking berries do. We may say that *the landscape saturates the operation* and gives it its form – its

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[5] (added 2009): In one of our conversations at King's College, London, in the early eighties, *Peter Winch* told me what title *he* would have given to this article: *It is the berries that make the difference*. I enjoyed the playfully British character of his imagined title and I appreciated his pointing to this example and to this paragraph, as it is here that my basic point is perhaps most clearly visible. But, as a serious Scandinavian, I did not regret the more prosaic character of my own title.

Perhaps it was the absence of the word "intentionality" in this article (but perhaps not only that) that made *Dagfinn Føllesdal* ask me, a long time ago, if I had no place for the concept of *intentionality* in my philosophy of action. My answer was that the article is "permeated with intentionality". Which answer he at once recognized. – Another concept that has a strong presence in this article, though the word is lacking, is *internal relation*. (I have been told, more than once, that the concept, or the idea, of *forms of life*, can play no important part in Wittgenstein's philosophy of language, as the expression "form(s) of life" occurs only five times in the whole of the *Investigations*. So much for counting occurrences.)

choreography as well as its (tautologous) point. Whatever place picking berries has within his economy, he is picking berries all right.

If we cut out the landscape, only a mechanical form of description remains. We cannot then report, for example, that he holds the stalk still with his left hand while he picks the berries with the right. What we can do is, for example, to plot the movements within a system of geometrical co-ordinates. And it is here, somewhere, that it hits us that there is something or other lacking. And straight away there are some in Århus for example, or in Oxford, who say that it is the intentions that are missing. The man must intend his movements. Well, imagine a number of intentions placed into the mass of his movement, and see whether it helps. You may for example give him one intention for each change of direction of movement. What you are not allowed to do is to give him, e.g., one intention for each berry he picks, for we have cut out the landscape, and you cannot speak of his picking berries either- not any more. The task was to get his bodily movements, or some of them, made into picking berries, by adding something or other internal. It is no easy task, since we now also lack that which lacks only intentions before it is turned into picking berries, or into emptying a handful of berries into the bucket, etc. That is to say, we lack a reason for preferring one division of the mass of movements to another- or one segmentation to another, as the phonologist would say. It is, therefore, quite indeterminate what it is that one must intend when one must intend one's movements. Besides, what we intend or do not intend, what we mean or do not mean, etc., are not our bodily movements, or groups of them, but *what we do*. We have no other concepts of intention at our disposal. However they are analysed, intentions are operative only where there are already actions. They don't attach to movements. And so we lack also that internal something which should make something *we do* out of the bodily movements that we are also at a loss to identify.

But now we must show the fly the way out of the fly bottle. It must out where it came in. What is lacking is what was cut away, the landscape that the berry-picker is operating in. The daylight which allows him to see the blueberry shrubs; the ruggedness of the forest floor which he adjusts his steps to and which makes his adjustments intelligible to us; the berries which he picks and which we see that he picks; etc. Let the man have his landscape back, and we see straight off that he is picking berries. And if it is the choreography that bothers you, then that too will be well described if you describe the landscape he articulates his operations in, and describe it as a berry-picker's landscape.

The landscape that is necessary to give the operation its identity and bodily form, may be called the *tautologous landscape* of the operation, or its necessary landscape. The identity that the berry-picker's tautologous landscape gives to the berrypicker's operations, is their identity as berry-picking, that is, as *that* activity, with its *tautologous point*- as distinct from the identity that derives from its place within some larger cluster of practices. And it is the same landscape that gives to the operations their choreography. And giving them both their tautologous point and their choreography, we say that the landscape saturates the operations.

The tautologous landscape of an operation must be described in such a way that it makes room for its tautologous objects and its tautologous subjects as well. The agent and his operations must fit the landscape, and vice versa. (If you describe his landscape in purely physical terms, the agent will come out as a robot, whatever you say about him.)

The berry-picker operates *with respect to* his landscape, and he operates *within*, say, a form of householding. But we haven't described the world that he operates within, if we haven't described the world or the worlds that he operates with respect to. And the one description must fit the other.

3.1 The point about the agent and his landscape, is not restricted to the case where the agent is a single man. It holds for teams or other systems of agents as well, whether the system is stationary, as for example a single farm household or a village of such households, or mobile, as for example a collective of reindeer herding Lapps or a purse seine fishing boat with its complement. The terrain as defined by the activities of *the siida*, the collective of reindeer herders, is not to be described as it is described by the botanist, the geologist, the meteorologist, etc., or by the team of them. Compare, for example, the 168 or so words for snow and snow conditions that belong to the reindeer herder's vocabulary with what the meteorologist has to say about snow. (The meteorologist's vocabulary does fit in with some practical activities, though. Roughly, it fits the activities of the farmers, the fishermen and the sailors- on a grand scale analysis of those activities.) Consider also, that to explain some of those 168 words or so for snow and snow conditions, to a cattle farmer, say, it is necessary to tell him quite a lot about the habits of reindeer, the herding of reindeer, the relations between the different siidas, etc. To learn a language is, in very many ways, to learn a form of life, and the other way round. And to this form of life there also belongs a form of landscape.[6]

   "The physical qualities of landscape are those that have habitat value, present or potential", writes Carl Sauer in his article "The Morphology of Landscape". In that same article, Sauer quotes Alexander von Humboldt: "In classical antiquity the earliest historians made little attempt to separate the description of lands from the narrations of events, the scene of which was in the areas described, For a long time physical geography and history appear attractively intermingled". Sauer's article is printed in the collection *Land and Life,* University of California Press, 1967. The rule about analysing the landscape in terms of our operations in it, and our operations in the landscape in terms of the landscape, also lies at the basis of Paul Bohannan's article "Africa Land". This article appears in Dalton's anthology *Tribal and Peasant Economics,* American Museum Sourcebooks in Anthropology, The Natural History Press, 1967. And the same rule seems to be breaking through in the psychology of perception. See, for example, J.J. Gibson's book *The Senses Considered as Perceptual Systems,* Allen and Unwin, 1968, where the subject's surroundings are analysed as *habitat*.

   The adequate *philosophers* are Wittgenstein, Heidegger and Austin, in that order.

4. We may also construct the *tautologous subject* of an operation. We do this if we identify the man who is chopping wood, not as *Nils* or *the parson*, but as *the wood-chopper*. The tautologous subject of picking berries is a berry-picker, of making shoes it is a shoemaker, of tanning leather it is a tanner, of cutting out the leather it is a leather-cutter, etc. This rule may yield some grotesque word-formations, but the concept-formations are in order. (The theory of *the adequate counterparts* is sketched by Aristotle in *Categories*, Chapter 7. This theory may also serve as a key to understanding some of Heidegger's quite baroque word forms.) A shoemaker *qua* tautologous subject of an operation, is a shoemaker every time he makes shoes, and when he is a shoemaker, he is also a leather-cutter, boot-sewer, etc. A man who is shoemaker by trade is also a shoemaker when he is not making shoes, and he is a shoemaker by trade only if he makes shoes for sale. But if we close the space to the very production of the article, being a shoemaker by trade coincides with being a shoemaker *qua* tautologous subject of the operation of making shoes.

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[6] (added 2009): This point is worked out in *The Two Landscapes of Northern Norway* (1988) and also in *Words and Objects* (1992).

The operation of making shoes only exists within the framework of a technology. The tools and materials that define the operation within a given technology, also defines the tautologous subject of the operation – that is, the agent gets his identity from the same technology.

Read this as a partial interpretation of Marx's statement in *The German Ideology:* "As the individuals express their lives, so they are. What they are thus coincides with their production, both with *what* they produce and *how* they produce it". But Marx speaks of men where I speak of agents, and his men are placed within large-scale technical-cum-economic orderings, whereas the agents of my example are placed only within their innermost technical orderings, or within their innermost terrains.

An operation like chopping firewood or making a pair of shoes, has components that are themselves operations. If we identify an operation with a given system of component operations, we must identify the tautologous subject of the operation with the corresponding system of tautologous subjects. That is to say, if the operation of cutting the leather is subordinate to the operation of making shoes, then the leather-cutter is subordinate to the shoemaker (without any person being subordinate to a person). In that case the operation and the agent will change their identity with a change in tools or materials.

5. The tautologous subject of an operation is embodied in the human being who is carrying out the operation. When I speak of the human being who carries out the operation as *the agent*, I mean the human being *qua* tautologous subject of the operation. When the operation has been analysed, we are able to construct the agent's *tautologous body*.

At one point in the analysis of the operation we read, for example: "The agent holds the piece of leather against the iron last with his left hand, while he strikes it with a hammer with his right hand". This part of the analysis allows us to endow the agent with two hands, and with an adequate amount of body between them. The same place in the analysis tells us that the agent is not operating with his bare hands. *The piece of leather* is what he operates *on*. It is the object of the operation, but, defined as a piece of leather, it is not its tautologous object. There is nothing in the operation of hammering to define what is hammered on as being of leather (whereas in *hammering out* something that something must be *of metal,* and the point must be to *shape it*). What about *the hammer?* The agent does not operate *on* the hammer, but *with* the hammer. That is, when the operation is to work on the leather by hammering it, with a hammer, there is no operation built into this operation which is an operation *on* the hammer, such as it is if the operation is to hand someone the hammer, to shift it a bit, to move it up and down, etc. The operation of hammering the leather has what is hammered on at its object place. The hammer belongs to what is *in operation*, that is, it belongs to the agent's body. But if the shoemaker, or the leather-hammerer, also holds a knife in the hand he is holding the leather with, then the knife will not be counted as belonging to the agent's body. The agent is the tautologous subject of the operation, and the knife has no place in this operation. A tool belongs to the agent's body only if it belongs to the agent's tautologous body, as distinct from, say, the agent's left foot, which belongs to the agent's body whether or not it belongs to the agent's tautologous body.

The agent's tautologous body is the smallest partial system of the agent's body that is compatible with the operation. I say "partial system" and not just "part" because the operation also generates an ordered segmentation of the agent's tautologous body. For example, the right hand may be unsegmented in one operation, doing its work as one piece, and segmented in another, and it may be segmented like a mitten in some operations, with thumb and palm, and like a glove in others.

5.1 This concept of the agent's tautologous body presupposes that the operation can be given a unique description with regard to its bodily articulation. (If this cannot be done, neither can we identify the partial system of the body that is in operation.) And that in turn presupposes that the operation is not defined within a space empty of technology. It cannot, for example, be defined on the basis of whatever is essential for something to be called "making shoes"- regardless of whether it is done by hand or with machines, regardless of whether it is done by human beings or angels, etc. If the operation is defined on the basis of its product alone, as for example *shoe-making*, that generates no description of what the agent does when operating, beyond that he does something or other such that shoes result from it. If the technology is not implied (but it is, as a rule) it can be anything whatever. And the bodily articulation of the operation may have any choreography whatsoever- if it has a bodily articulation at all. Purely conceptually, as they say, it is perhaps not ruled out that angels can make shoes, e.g. by commanding them to be.

The operation must be defined within a space where the human body is already known, as an agent-body (that is, not necessarily with respect to its chemistry or physiology, but with respect to its operative form) and within a space where the innermost landscape of the operation, and its equipment, have already been described. It is only within such a space that we can distinguish between one and two operations, or individuate them, and it is only within such a space that an operation can be analysed as a system of operations. As to the bodily form of the operation, or the shape of its bodily movements- we shall have a clear picture of that as soon as *the operation* has been described clearly.

One picture of what it is to do something, is of a body in motion in space. The body has the shape of a human being and the space is an unfurnished room. If one takes this picture seriously, as many writers on movements and action seem to do, one must take the concept of the bodily form of an operation, or of its bodily articulation, just as seriously. That is, one must invest some work on it. The first task will be to try to divide some mass of bodily movements into its proper segments, like a phonologist confronted with some sound masses of speech, and to work out some principles of segmentation. Try to do it, and the picture will lose its grip. It will no longer be possible to take it seriously.

What one must do is not to endow *this* body with intentions. That cannot be done. One must furnish the room and give the man a task. Make him, for example, into a shoemaker, give him a shoemaker workshop, from a definite technological period, and tell him to make a left ski booth size 43. Then you will know how to divide his movements into their proper segments, if you know his craft. And it will give you a clear picture, not of his movements *simpliciter*, but of the movements of his actions.

6. I can describe what a man is doing who is making shoes, without saying anything about what he sees, and without my description being *therefore* incomplete. He sees what he needs to see to do what he does, he masters what he needs to master to do what he does, he knows what he needs to know to do what he does, etc. I abbreviate all this to: he *knows* what he is doing- and let it stand as an axiom that *the agent* knows what he is doing. What a man must necessarily know in order to be able to do something, he knows of necessity when he does it. That defines the agent's *necessary knowledge*.

The agent's necessary knowledge reaches as far as the tautologies of his operation. It collects as much of the world in which he operates as is collected by his operation in it. It collects, for example, its tautologous landscape. But, like the necessary truths that are built into his language, the necessary knowledge that is built into his craft may have to be brought

home to him, Meno-wise. In both cases, there may be some steps from the mastery of a practice to the mastery of its analysis.

If I identify what a man is doing as making shoes, then I imply that he knows that he is making shoes. And that, in turn, is rich in implications. I imply that he knows how one makes shoes, in the sense that that is what he is doing. I imply that he knows how such a shoe as he is making looks, that is, that he will know when he has made it, that is, that he will not go on working on it after it is finished. I see that he is hammering the leather, and imply, or read off, that he knows what leather is, that is, that he has a shoemaker knowledge of it, such as knowing that it is a material from which one can make such shoes as he is now making – and I imply, or read off, that he knows that hammering the leather is good for something, such as making the shoe softer or the subsequent work easier. I see that he beats the leather with a hammer, and imply, or read off, that he knows one can use a hammer to beat leather with. Etc.

If a man is at ease in his chair, doing nothing and saying nothing, there isn't much to be read off either, about what he knows or doesn't know. He is our other-minds man – "A penny for your thoughts" and all that. But let him speak, or go about his craft, and we can read off quite a lot – if we know his language or his craft.

6.1 In my reading off, I presuppose that my identifications of what the man is doing fit (what I shall imagine as being) his own instructions to himself. I presuppose, for example, that the operation that I identify as making a left ski boot, size 43, the agent organises on the instruction "make a left ski booth, size 43". As that instruction is naturally thought of as a system of instructions, it might also be called a "programme". I imagine that such a programme, within the framework of a given technology, generates a system of subordinate operations, and that the agent, at every point in the chain of operations, articulates his own operations on the basis of the instructions which define that point. I *identify* an operation if I present it as an unanalysed whole.

If I analyse it as a system of *n* operations, I can identify each of the *n* operations. The system of my identifications is my *description* of the operation. I presuppose that my identification and the agent's instructions *can* fit each other, that is, I presuppose that there is a commonality in concepts and practices between the agent and myself. But this is a presupposition that underlies all of our dealings with each other, in speech and in practical work, so it isn't a presupposition in any usual sense. It is rather a statement about what it is for our world to be one world.

My identification of an operation generates a system of implications about what the agent knows, since he knows what he needs to know to be able to execute such an operation. If my identification of the operation answers to the programme the agent himself operates on, then that system of implications answers to what the tautologous subject of the operation necessarily knows, it answers to the agent's necessary knowledge.

To my identification of the agent's operation corresponds the agent's instructions for the same operation. To my description corresponds his programme. (I speak also of the agent's programme if it is clear that what I have identified as one operation can easily by analysed as a system of operations.) It is a consequence of my analysis that my identifications or descriptions of the agent's operations are not *external* to his operations. I do not lay my concepts on top of a mass of bodily movements, any more than the agent lays his own instructions to himself on top of the movements of his own body. The agent's programme, or system of instructions, is embodied in the agent's operations. If my description, or identification, of his operations is adequate, it is because it reproduces the programme embodied in his operations. If it is not adequate, it is because it does not reproduce it.

The adequate description of an action is that which, used as a set of instructions, gives the same action. (Miller, Galanter and Pribram advise us to that effect in their book *Plans and the Structure of Behavior,* Holt, Rinehart and Winston, Inc., 1960.)

If the agent is a shoemaker, making a pair of skiboots, size 43, the least rich instruction that is still rich enough to generate this system of operations, is, e.g. : "Make a pair of skiboots, size 43". And a description, or identification rather, that reproduces this instruction, is: "He is making a left ski booth, size 43". Within a given technology, and only within a given technology, this instruction will generate a system of instructions, each of them valid for some lower-order operation within this system of operations. To this system of instructions there corresponds an isomorphic system of identifications of those operations. If these identifications are joined together, by such terms as "subsequent to", "prior to", "preparatory to", "as a consequence of which", "subordinate to", etc., we arrive at a complete description of what the shoemaker is doing, in making that pair of shoes. This long description may, of course, be shortened in one way or another. The question of how it may be shortened when, belongs to the pragmatics of describing.

6.2 Think of the agent and myself, the observer, as two practitioners of the same craft. The concepts that go into my description of what he is doing, are the concepts that go into his own instructions to himself, or into his own description of what he is doing. If we are not of the same craft, I shall have to find a level where we are. (He is a shoemaker and I am a silversmith, and we both apply tools to materials to make articles to fit some or other of our household practices, be they boots to use in the cow barn or goblets to be used on ceremonial occasions; we both make goods for sale, etc.) In a society with a complex division of work, we are all of us poor observers of the doings of most of our fellow men.[7] If this hasn't struck you hard, it is high time for you to make some expeditions into other areas of life. But also, there are not two jobs, or no two sets of practices, with no forms in common between them. And that is what makes our world one world.

7. My several points are, all of them, derived from just one point, which is that the agent cannot have knowledge of what he himself is doing without having knowledge of the world within which he is doing it. Whatever division we make between the agent and the world in which he operates, the agent's knowledge of what he himself is doing will cut across that division.

Carl Erik Kühl, a Danish philosopher, composer and musicologist, has constructed the concept of the agent's *tautologous position*. That is the position the agent is necessarily in when he is *in operation* – or when (he is in such a position that) the *next operation* is an operation in that chain of lower-order operations which makes up the operation. The agent's tautologous position is the product of, for example, *the tautologous place* of the operation (on board a plaice-trawler on the plaice fishing ground, if the operation is to trawl for plaice; or just on the plaice fishing ground, if we make *the trawler* the agent (as we should)), and *the tautologous object* of the operation (the seabed with plaice which can be reached with a plaice-trawl) and *the tautologous impliment* of the operation (the plaice-trawl). If the operation is to saw wood, then the agent's tautologous position, within a given technology, is by the sawhorse with the piece of wood on the horse and with the saw in his hand. Etc. The

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7 (added 2009): This point is worked out , via examples, in *Some Remarks on Agent Perception*. Printed in Hertzberg and Pietaninen (eds.): *Perspectives on Human Conduct*. Leyden: Brill 1988.

point of one operation, as for example making a tool, or buying or fetching it, may be to establish the tautologous position for a second operation.

The agent's tautologous position is a position within the tautologous landscape of the operation. The tautologous landscape for trawling for plaice is a plaice fishing ground. The tautologous landscape for making shoes is some firm base for the agent and for the tautologous tools and objects of his operations, and room enough for him to articulate his operations- such as raising the hammer for a blow. (The Welsh coal-miners of the last century seem sometimes to have been given somewhat less than their tautologous landscape to work in.) Whereas the agent's tautologous position collects the tautologous objects and implements of his operations, in their proper places, the tautologous landscape of the operation provides the necessary receptacle for all this. The product of the agent's tautologous position and the tautologous landscape of the operation may be called the agent's *tautologous world*. The one point, then, which my several points serve to spell out, is this: To each operation in our world there corresponds a well-defined cut of our world, or a well-ordered niche within it. Without that niche, the operation does not exist as *that* operation. The agent's necessary knowledge of his own operations, or of what he himself is doing, includes necessary knowledge of that niche. That is, the agent necessarily has knowledge of the agent's necessary world.

The agent's necessary world is also the smallest intelligible system within which his operations are intelligible.