

## CHAPTER I

# THE IMPORTANCE OF BELIEF

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### I. THE ISSUE

Once upon a time there was a mighty firm called Cognikos, famous maker of intelligent systems. The firm was located in the heart of a mighty and famous area of Mars called Sillyclon Valley. The crack research team at the firm was working on a top-priority project dubbed EI (for Earthly Intelligence). The Martian researchers had never had any personal contact with earthly humans but knew a lot about them. The Martians had pictures of films about humans, and copies of major books and papers in neuroscience and psychology written by famous humans; and they had even managed to get a human brain for detailed study. Such, then, was the data base for the EI research at Cognikos. After a good beginning and some steady progress in understanding how humans perceive and use language and even solve fairly simple problems, the Martian team began to face increasing difficulties in deciphering and modelling more complex cognitive functions of the earthly mind. After a while, they decided that something important was missing from their picture. At their mid-morning meeting the EI researchers were 'brainstorming' each other furiously, to no avail.

'Look,' they told the vice-president in charge of the project, 'we have pretty much figured out how, at a basic level, humans absorb, represent, and use information. In fact, it appears that towards the end of the twentieth century the humans themselves began to understand some of their basic perceptual and linguistic capabilities. But obviously this is not enough. More complex cognition, in the human case, does not appear to flow from simpler structures, as it does in our case. We are not designed the same way. So we have a problem.'

Exasperated, the vice-president summoned Doxoi, the firm's top intellectual spy. 'Doxoi,' the vice-president said, 'we are going to

send you on a mission to Earth. Keep your eyes wide open, sniff around, listen a lot, read their academic and non-academic output, talk even to the lovers of wisdom, and try to find out what we are missing from the story of human cognition. And Doxoi? Bring me a hamburger and a Coke from down there, will you?"

So off went Doxoi. He listened to, and taped, countless academic talks and ordinary conversations in various earthly languages, read all sorts of things, went to many lectures and seminars all over the planet, and kept his eyes and ears open. Satisfied that he had gathered a fairly extensive body of information on EI, he went to see the man down south, after which he returned to Mars.

At the Monday meeting they were all impatient. 'I have good news and bad news,' said Doxoi. 'The good news is that I may have found what we are looking for, the missing link in our picture of EI. The bad news is that I do not know what to make of the good news and, I am afraid, nor will you. I begin with the good news.'

'As you well know, like us, humans register, represent, store, and use information. Some of their information processes, like all of ours, are rigidly programmed, or modular, in their entirety. But others, apparently, are not. Also, whereas we have a lot of modules, they seem to have only a few. When they go beyond the range of the modules, which is quite often, they somehow improvise. This is probably why, unlike us, humans seem to hesitate a lot, if "hesitate" is the right word. It is a strange phenomenon but quite prevalent down there. They even seem to enjoy it. Weird. Anyway, there, I think, may be the key to our problem.'

'First, I looked for the linguistic evidence, which, indeed, seems to support the centrality of hesitation in their cognitive life. For example, all their languages seem to have words like "believe", "assume", "imagine", "guess". And they use such words quite a lot, particularly in situations which fit my hypothesis about their cognitive hesitation. From now on I will take the generic word "belief" to stand for the class of human words used in those situations. So, my hypothesis is: whatever the notion of belief is, it may solve our problem.'

'Once this became clear to me, I started looking for what humans had to say about the notion of belief. This is where the good news tends to slide into bad news. It turns out that only their philosophers are genuinely interested in the notion. Their cognitive psychologists and brain scientists show no such interest, which is why we found

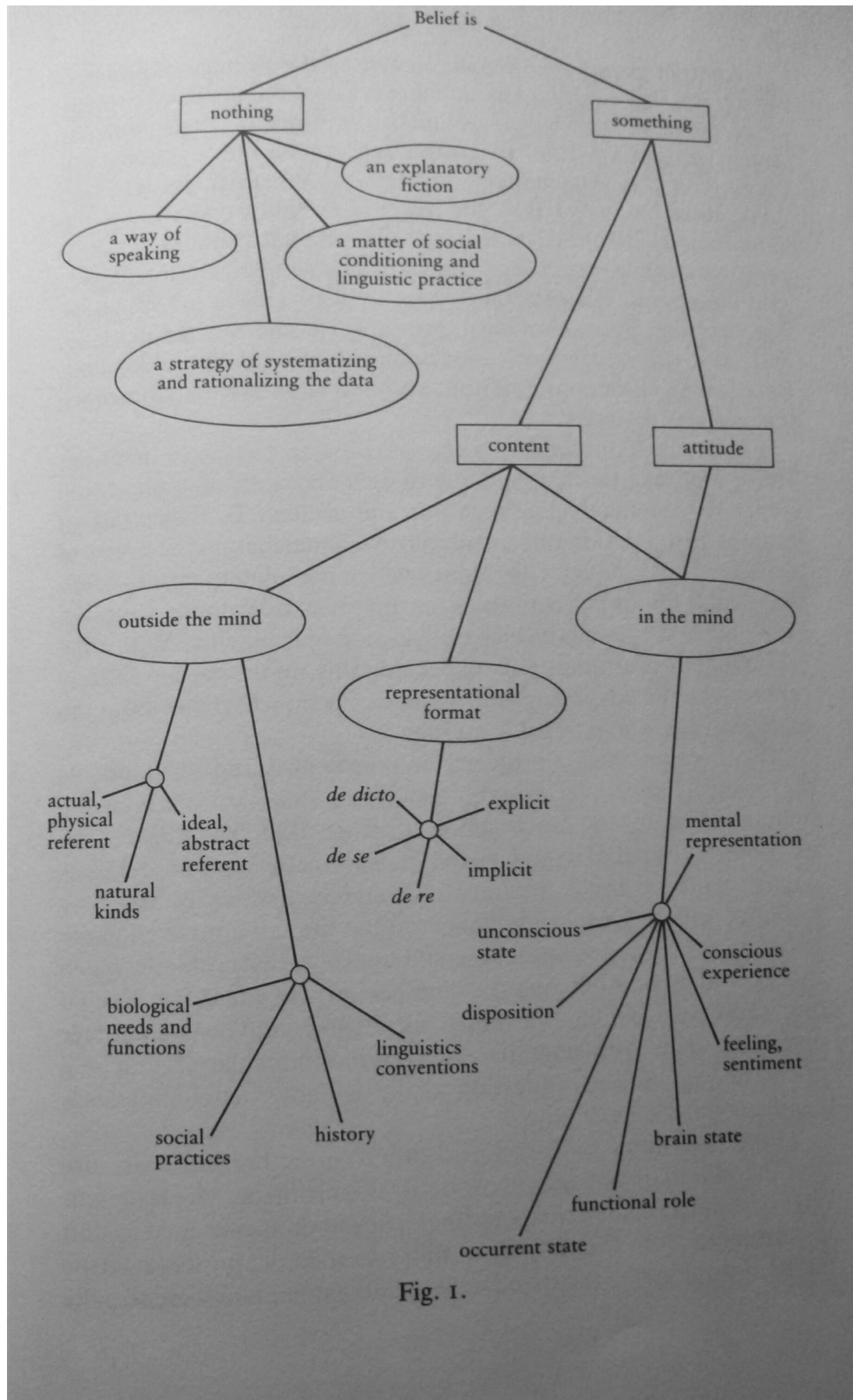
nothing in their literature. (Some humans seem to think that psychologists and brain scientists do, in fact, deal with this notion of belief, but in terms of more basic processes. I wasn't able to find any evidence to this effect.) But, even with the philosophers, the situation is not that simple. It seems, from what I could gather in my travels, that only the English-speaking philosophers worry and write extensively about belief. (Pain is another thing they worry and write a lot about, but that is another matter. Or is it?) Anyway, for reasons which I couldn't really fathom, European, Russian, and other species of philosophers do not seem excited by the topic of belief. This may be significant, but I did not have time to pursue the matter. There is, however, one linguistic detail I thought you people might want to know about. "Belief" in English appears to be more versatile, and in some sense more neutral, than in, say, French or German. In the latter languages "belief" is truly synonymous with "opinion", "conviction", and the like. What is interesting is that English allows you to speak (in a philosophical tone of voice) of, say, "animal belief" or "perceptual belief". In French, I am told, *opinion animale* or *croyance perceptuelle* sounds a bit odd, if not plain silly. A French sage is said to have said, *Avoir une opinion, c'est préférer de se tromper*. Modules do not have this option. Not on the continent of Europe, anyway. It seems that in some languages you cannot easily attribute belief to simple information processors. There may be a correlation between what a language allows you to say about belief and what you say philosophically about belief in that language.

'Perhaps this would not matter too much if it were not for the following important fact. It appears that from their early antiquity until early in the twentieth century earthly philosophers had no hesitation about putting forward bold, venturesome theories about this or that topic without worrying about common sense or linguistic practices—in fact, they enjoyed challenging them. Whether right or wrong, at least they knew what they wanted and what they were after. In particular, no theory of the mind from Plato to Descartes to Kant to Husserl had much to do with earthly common sense and the way *hoi polloi* speak. But, for a number of reasons, this has changed in the last decades of the twentieth century. Philosophical populism, or *hoi polloi*-ism (meaning what people say and do in normal life), and personal intuitions are now very fashionable. The result is that philosophers no longer have bold, venturesome, even a priori

ideas about a phenomenon like belief, the way Plato had. What many philosophers are doing these days is polling each other and the man in the street for their raw, basic "intuitions" (they talk of "intuitions" all the time!), on which they then build rather non-intuitive technical analyses. The results are not always very enlightening, I must say. So this may be as good a moment as any to take a quick look at the philosophical picture of belief. Now you will understand the sense of "bad news". I will start with a graphic schematization (Figure 1) and then amplify a bit. The aim is to give you the main options with their pluses and minuses, so you can apply a cost-benefit analysis.

The first bifurcation is the toughest for us. If belief is nothing, that is, if the notion of belief describes nothing in the mind, then we cannot expect that notion to give us the key to human cognition. Now why would enlightened people down there say that belief was nothing, which would mean that it had nothing concrete in it, or that it should not be construed realistically, or that it could not be mapped on to distinguishable and autonomous cognitive mechanisms, structures, or processes, or, in general, that the notion of belief was not psychologically or neuroscientifically or even physically descriptive? Let us call philosophers who take this line, in different versions, "belief eliminativists". What are the appeal of and the reasons for such eliminativism? One idea, popular some time ago, is that talk of belief is just a matter of linguistic practice and usage, a way of saying something appropriate in certain circumstances, for instance, when one wants to indicate hesitation or uncertainty or a certain logical treatment of a sentence (one says "I believe that  $p$ " to indicate "I take  $p$  as a premiss", or the like). This, I thought, sounds fine, but why would humans *want* or *need* to talk that way in the first place; what is the *rationale* behind their linguistic practices? Interestingly, many philosophers who subscribe to this socio-linguistic elimination of belief do not ask these prior and deeper questions. They just describe the phenomenon without explaining it. They may say, for example, that it is their language game or that they have been conditioned by society to talk that way. Notice that in a sense these philosophers are realists about belief. They imply that talk of belief describes certain configurations of social, practical, and communicational circumstances. But that is not going to help us, because we want to design an intelligent human mind, not (thank God) an intelligent human society.





'Another group of belief eliminativists, the strategic eliminativists, holds the view that talk of belief is a useful conceptual strategy in terms of which we can systematize, rationalize, and predict at some appropriate level of abstraction (which they typically call "intentional"), what humans say and do. When (they argue) we look more closely at how the mind instantiates or executes the intentionally attributed beliefs and other mental attitudes, we must realize that all we are going to find are fairly simple, non-intelligent, non-intentional microsystems which do their job—a job which we can describe, at a lower level, symbolically and computationally, and, at a still lower level, biochemically or something like that. Belief, as an autonomous notion, evaporates when we so slide down this explanatory slope.

'Ferocious eliminativism is the last version I want to mention. Those who take this line find talk of belief not only metaphysically empty but intellectually dangerous and useless. To them, talk of belief is just a residue of a stubborn Neanderthal myth, a sort of alchemy or astrology of the mind, which completely misdescribes the mental life of humans and is incapable of explaining, causally, even the most elementary cognitive accomplishments. With time and adequate funding, it is expected, this myth will be entirely replaced by the advancing neurosciences. So much, then, about the many ways in which belief is nothing.'

At this point the EI project vice-president raised his hand. 'Is there any chance,' he asked, 'that these eliminativists take the human mind to be much more modular than we think? The nothingness of belief would suit us well *if* humans were modular, as we are. But we think they are not modular, which is why they hesitate, which is why they believe. One may of course stipulate belief out of existence but that would not solve our problem, which is the problem of their cognitive "hesitation", as you call it. Even if one eliminates belief, one must, at some point, invent another notion to deal with cognitive hesitation, if the latter is a real phenomenon. So, my question really is: how do eliminativists handle cognitive hesitation?'

'Good question,' said Doxoi. 'I don't know. I'm not even sure that the eliminativists are all aware of the problem. The ferocious ones certainly aren't. The socio-linguistic eliminativists tend to shift the problem from the individual mind to society and its linguistic habits. I wouldn't be surprised if they said that humans were socially

conditioned to hesitate. "Belief", they may say, "is what society tells you to hesitate about." The strategic eliminativists may recognize the problem and the social strategies for dealing with it (rational calculus of probabilities and utilities and the like), but, in a way I cannot fully understand, they hope that in the long run a sort of modular psychology and neuroscience will do all the explaining. Good luck. Any further questions?

'All right, then. Now the other major alternative. Belief is something, that is, something mental. What exactly? Well, the current consensus within that alternative is that, at the very least, belief must be a mental attitude to a representational content, specifically, to whatever the content clause "that *p*" stands for in "S believes that *p*". The content must have a propositional format because it represents not objects or properties as such but, rather, facts about them. This is where the consensus ends and the frustration begins.

'About the attitude itself there is not very much to say. It looks like a rather thin notion. Very early in the philosophical game, the attitude had been characterized as, for example, a capacity directed towards certain aspects of the world and responsible for producing certain specific cognitive experiences. That, I was told, was Plato's view. There is, to my mind, an interesting reading of the subsequent development of the notion of belief. It looks as though each of the two components of the Platonic view, the capacity and the resulting cognitive experience, became an independent and self-sufficient candidate for the notion of belief. The notion of capacity resurfaces in modern times as the notion of belief as disposition. The cognitive experience, on the other hand, resurfaces in such modern notions as belief as conscious experience, or feeling, or sentiment, or vivid mental representation, or the like. The dispositional notion is attractive to the more scientifically and behaviouristically inclined philosophers, the notion of conscious experience to the more introspective or mentalist philosophers. As far as I can tell, neither notion is very promising. Surely, believing must involve a disposition or capacity, but so do many other mental attitudes and undertakings. A specific disposition to act in response to an input? This must be true of desires and intentions as well. Also, overt action cannot be the only manifestation of belief. A belief may also be responsible for, and hence manifested by, other beliefs and mental attitudes, inferences, and so on. If we want to design such a

disposition, the dispositionalist literature is not going to be of much help. Nor are we going to be much better off with the notion of belief as conscious experience. For one thing, I could not tell from the literature on this subject whether, when talking of a conscious experience, philosophers were talking of belief itself, or of a result of believing, hence of the evidence for believing. The notion fits both these readings too well to be of much use. Another handicap is that the notion of conscious experience cannot accommodate unconscious belief, a phenomenon that humans have come to accept, rather reluctantly, in recent times.

'An apparently more promising notion explicates the attitude part of belief as functional role. A mental content, on this notion, is a belief only if it plays a role in the organism's cognition and behaviour. That is all right, but it does not take us much further than the earlier, dispositionalist idea. It may be that now the belief is not so much the disposition but its exercise in certain conditions. But, somehow, it looks like the same general slogan. Yet, it should be said, both the notion of belief as disposition and that of belief as functional role have the quality of emphasizing that an inert mental content will not do. Unfortunately, so far, they fail to specify concrete constraints on what makes mental representations operate in executive positions.

'There is one more complication on the attitude side of the belief question. It has to do with the traditional human expectation that beliefs come in degrees. Humans' ordinary doxastic vocabulary is very sensitive to this expectation. There are even ordinary as well as sophisticated ways—betting, for example—of measuring the strength of one's beliefs. So we may have to think of incorporating a probability metric in our doxastic concoction. There are fierce disagreements among philosophers down there about how to construe this probability metric of belief, but I will let this pass. Those interested can read the literature I have brought with me. The problem I want to address myself to is this: there is a vocal minority, both in epistemology and philosophy of science, which argues that belief is, in some sense, an absolute, all-or-nothing notion, not a probabilistic one. One interesting reason in support of this view is connected with the idea of belief as functional role. It is said that a belief must be treated as certain, with probability one, if it is to play a role in either cognition or behaviour. For example, the argument goes, a belief could not be a premiss in an argument if it was not



premisses as true. Even if the premissing is conditional, as it most often is, the probability of the premiss is still one *in that context*. Likewise, a belief cannot support an intention or an action if, at least in that context, it is not treated as true. It appears, then, that dogmatism of belief, however contextual, must go hand in hand with a belief playing a functional role. Revision of belief, on this view, is not revision of probabilities but, rather, a qualitative change of mind. What about probabilistic belief? I have a suspicion that it must be relegated to the modular formation of formal representations, but that, for many people, is not fixation of belief. Given the way we Martians function, we must agree, mustn't we?' (Uncomfortable laughter in the audience.)

'What about belief content? Well, the story gets rather complicated at this point. A belief content is, first of all, a mental representation, whether a visual image or a sentence in some natural language. There is also talk down there of an inner code, or language, of mental representation, underlying the various surface representations I have just enumerated. If so, then a belief is ultimately a relation to some formal structure in this basic code. Whatever the code in which a mental form gets expressed, the question we want to ask is, what exactly is it that a mental form encodes or represents? That is, what sorts of constraints must the encoding or representation comply with? For example, if syntactic constraints are the only constraints on encoding, then a belief content is a mere syntactic form. Some theorists down there are prepared to claim precisely this. But most appear to think that this is insufficient, and that additional, meaning-determining constraints are also needed. In that case, a belief content is a *meaningful* syntactic form of some sort. The emphasis being on the natural language, a belief content is typically a sentence in some such language. Perhaps the philosophical notion that best captures this construing of belief content as a meaningful form is that of proposition.

'How are they construing such meanings or propositions? With anarchic gusto. For some, propositions or meanings are only in the head, for example, as syntactic forms under concepts. For others, what is in the head is not enough to fix a meaning or a proposition. External, non-mental co-ordinates are also needed. These co-ordinates may be abstract and ideal, as in the Plato-Frege tradition, or particular and physical, as in the Russell tradition, or, finally,

"natural-kind-ish" and physical, as in the more recent Putnam-Kripke tradition. For still others, all these co-ordinates are still insufficient to characterize the aboutness of belief. Linguistic conventions and social practices must also get into the picture, with the consequence that what people are conditioned or used to saying in a given linguistic community is going to affect *what* they think and believe, or perhaps the way we should construe and explain what they think and believe. This in turn reinforces the view that belief is not a purely cognitive notion or, from an explanatory viewpoint, not a pure psychological construct.'

'Freeze right where you are!' urged a young researcher. 'Let us assume that propositions, as meanings, are not only in the head. Let us also assume that beliefs are entirely in the head, that is, mental forms with an internal role. Wouldn't this indicate that what is believed is not necessarily a proposition or meaning?'

'Elementary, my dear Watson,' smiled Doxoi. 'That is indeed an attractive possibility, if one *also* happens to think that logical and semantic criteria are not psychologically explanatory. The notion of proposition is indeed a creature of logical and semantic constraints. We notice, therefore, that the notion of belief is pulled in two opposite directions. On the one hand, if the notion of belief is to explain what is going on in the mind, then apparently it cannot explain what is objectively believed. This in turn seems to undermine the very possibility of public and objective attribution of belief. On the other hand, if we want to protect the latter possibility, we have to make assumptions, like the semantic and logical ones, which do not have psychological cash value. A choice has to be made.'

Another Martian hand was trying to catch Doxoi's attention. 'How did they get into this mess about meanings and beliefs inside and outside the head?'

'It is hard to tell,' sighed Doxoi. 'Probably a combination of several developments. One I noticed is the vigorous, and now fashionable, emergence of naturalism in philosophy of mind, language, and epistemology. The general naturalist slogan is that the head is a part of the world, so to understand what is in the head is to understand what external inputs reach the head. Another development has to do with the very mechanism which accounts for how the world influences what goes on in the head. Generically speaking, it is causation. Causal theories are meant to characterize

what various types of mental states are about, irrespective of how those states represent what they are about. Philosophers now have causal theories for everything—you name it, perception, memory, knowledge, reference, and, of course, belief. But do not ask me the antecedent question, why naturalism and causation? I gather it is a long story, a sort of radical reaction to mentalism and Cartesianism, which always leave an unbridgeable gap between the mind and the world. Why unbridgeable? Because any contact with the world is representational, so you can't get out of the circle of representations—out of the head, that is—to establish the aboutness of the representations and check how well they represent what they do. That is the rough idea. Therefore, instead of playing this exclusively representational game, the naturalist says: "I am going to establish both the aboutness of a representation and its cognitive reliability by looking at how the representation is formed, in particular the causal mechanisms of that formation." Genetic fallacy? Maybe. There is finally the development already mentioned which says that social and language games, hence factors external to the mind, shape the contents of human thoughts, beliefs, and speech acts.

'Now one point that has to be noticed is that the external determinants of content and belief, whether causal or social or whatever, are not necessarily represented in the mind. They shape content without being explicitly encoded in it. This is the fact, I take it, behind the distinction between beliefs *de re* and beliefs *de dicto*. This is a distinction operative in occurrent contexts of cognition and generated by a question like: is a content fully mentalized and explicitly represented in the head? Hence should we represent it as the cognizer does, or should we add aspects to that content which the cognizer does not necessarily represent? But there is a more general, non-occurrent moral to this externalist story. It seems to say that contents and beliefs are shaped by deeper, more enduring, and latent external factors, such as environment, social and linguistic community, the history of the organisms in question, and the like.'

'We should be better off with Cartesian mentalism, if we want to simulate human cognition and belief, shouldn't we? It is a simpler and more elegant hypothesis.' The voice was timid, but many were nodding in approval.

'That is true,' said Doxoi, 'assuming that mentalism is right. Unfortunately, truth is often very messy. But do not despair. There

are still some valiant and bold mentalists down there who give the naturalists a hell of a fight. I have brought you some mentalist literature. Fun to read, no doubt about that.

'Well, I suppose that will do for this morning. There certainly are many others puzzles about belief. Are all beliefs explicitly represented and stored? Are all beliefs linguistic? Can animals believe? Believe what? How many beliefs can the mind hold? If only a few, in what sense are the rest beliefs? As implicit or tacit or virtual beliefs? What would those be? And then there are plenty of problems about the logical and semantic properties of the belief locutions. But I thought you needed first a general familiarization with the phenomenon of belief itself. As I said, I have brought with me plenty of literature. Tonight I will hold an informal seminar about the literature, as it relates to my presentation.

'I do not want to conclude, however, without mentioning a disturbing story which, I hope, will motivate you to work hard and unlock the mystery of human belief. Just as I was about to leave the world of belief down there, I chanced upon an article by D. K. Lewis called "Mad Pain and Martian Pain". Needless to say, I did not like the title. But I liked even less what came after the title. Let me quote the key passage about the Martian:

His hydraulic mind contains nothing like our neurons. Rather, there are various amounts of fluid in many inflatable cavities, and the inflation of any one of these cavities opens some valves and closes others. His [*he still means our, mind you*] mental plumbing pervades most of his body—in fact, all but the heat exchanger inside his head.

'I was really mad and pained, our good old Martian way, of course. As far as I can tell, it may be Lewis and his colleagues who have hydraulic minds, with their blood circulating in those tubes and all the rest. Remember Thales? More serious, though, is the implication of this misrepresentation of our beloved and efficient mind. If they think we have a hydraulic mind, they will also think we have some kind of fluid cognition. And then they will say that this is why we do not have beliefs and do not understand what it is to have a belief. Their reasoning is going to be as follows. Intelligent cognition requires digital and symbolic encoding and processing of information. Whatever is fluid is analog. Whatever is analog is physical, hence not mental. *Ergo*, Martians do not have minds. We've got to stop this nonsense before they become aware of it.



Our work on belief may dramatically alter this misperception. The question of belief is one of the toughest philosophical questions which humans have ever encountered. If we figure it out before they do, we surely must have minds.'

## 2. THE LITERATURE

Welcome back. You have to understand, my non-hydraulic friends, that this is going to be just an informal, and not very representative, sampling of the earthly literature on belief. Just a beginning. No claim to completeness and objectivity is being made. I have selected some writings on the basis of both what human philosophers have told me and what I have read and heard. I concentrate on the topics I have talked about this morning.

To begin with, I was not able to find one major, comprehensive, and recent monograph on belief. The only work I know which comes close to being such a monograph is H. H. Price's *Belief* (London, 1969). It is a work very much concerned with the classic mentalist and dispositionalist analyses of belief but much weaker on current trends and issues. Price's own view, an interesting version of traditional mentalism, is concisely presented in his "Some Considerations about Belief", *Proceedings of the Aristotelian Society*, 35 (1934-5), reprinted in A. Griffiths, *Knowledge and Belief* (Oxford UP, 1967).

For various specific views on belief, let us go back to our earlier discussion and the tree diagram used then. I begin with the left-hand, belief-is-nothing position. First, socio-linguistic eliminativism. The ordinary (English) language philosophy best exemplifies this version of eliminativism. Two lively, imaginative, and durable papers, one by John Austin, "Other Minds", first published in the *Proceedings of the Aristotelian Society*, 20 (1946) and reprinted in his *Philosophical Papers* (Oxford UP, 3rd edn., 1979), the other by James Urmson, "Parenthetical Verbs", first published in *Mind*, 61 (1952), are probably the best guides to this line of thought. Wittgenstein's *On Certainty* (Oxford, 1969) may well be your next, and more esoteric, reading. Let your imagination read between the lines as well.

Strategic eliminativism? Dennett's *Brainstorms* (Montgomery, Vt., 1978) is the book to read. There are traces of such eliminativism in some of Davidson's writings, now collected in two handy

volumes, *Essays on Actions and Events* (Oxford UP, 1980), particularly essays 11–14, and *Inquiries into Truth and Interpretation* (Oxford UP, 1984), particularly essays 9–11. Stephen Stich's *From Folk Psychology to Cognitive Science: The Case Against Belief* (MIT Press, 1983) can be profitably read in the light of strategic eliminativism, although many of its conclusions cannot be easily classified in one slot or another. Paul Churchland may well be the most ferocious of belief eliminativists in his *Scientific Realism and the Plasticity of Mind* (Cambridge UP, 1979).

'Now, the positive literature on belief. Plato, I was told, develops his pioneering views on belief in a number of his works. The notion of belief mentioned in my talk is outlined in book V of his *Republic*. From reports I had about the *Republic* we ought to read the whole book, because it appears to have anticipated many aspects of our beloved society. Plato may have failed to realize that modularity of mind is a condition of knowledge (in his sense) and hence a condition of being a philosopher-boss. Moreover, we have an interesting social consequence of the phenomenon of belief. An ideal Platonic society goes hand in hand with total modularity of mind and knowledge. Democracy, on the other hand, appears to be the political form which is best suited for people troubled by cognitive hesitation, that is, believers. Blessed are those who do not believe. But I digress.

'The mentalist, conscious-experience view of belief can be found in a number of modern philosophers, most notably Hume and Reid, and, in more recent times, Bertrand Russell in, say, his *Analysis of Mind* (New York, 1921) and Price in the article mentioned at the beginning of this talk. A classic and well defended statement of the dispositionalist position is R. B. Braithwaite, "The Nature of Believing", *Proceedings of the Aristotelian Society*, 33 (1932–3), reprinted in Griffiths, *Knowledge and Belief*. And do not forget Gilbert Ryle's *The Concept of Mind* (New York, 1949). Pure delight. They do not write like this any more. Belief as functional role is, as I said, more a slogan than a detailed analysis. So you find this notion all over the place. For a clear and concise discussion of it, try Gilbert Harman, *Thought* (Princeton UP, 1973).

'Now, probabilistic versus dogmatic belief. The notion that belief is probabilistic goes back many centuries. An original and highly readable history of probable belief (or opinion) and related notions such as evidence, induction, and probability is Ian Hacking's *The*

*Emergence of Probability* (Cambridge UP, 1975). Pascal may have been the first philosopher to attempt to give a rigorous quantification of the strength of belief. I was pleased to stumble upon a now familiar method of measuring the probability of a belief in Kant's *Critique of Pure Reason*, about A824/B852. There is even a reading of Kant which may suggest the distinction we were talking about between probabilistic belief (covering both what he calls "pragmatic" belief and what he calls "doctrinal" belief) and dogmatic belief (his "moral belief"). The recent literature on inductive logic is mostly devoted to probabilistic belief, particularly in statistical practice and in science. The minority view which holds that the notion of dogmatic belief is needed to understand the role of belief in inquiry, deliberation, and action has been anticipated in some pragmatist writings and in some of Karl Popper's works. But the most consistent and systematic effort of articulating and defending the notion of dogmatic belief in inquiry and deliberation ("acceptance", as he calls it) that I know is Isaac Levi's in his *Gambling With Truth* (New York, 1967) and *The Enterprise of Knowledge* (MIT Press, 1980). In philosophy of mind, the distinction between dogmatic and probabilistic belief appears in Ronald de Sousa, "How To Give a Piece of Your Mind", *Review of Metaphysics*, 25 (1971), 52-79, and is further discussed by Dennett in *Brainstorms*, pp. 300-9.

'Belief content now. Stich's book *From Folk Psychology to Cognitive Science* gives probably the most comprehensive and careful overview of the various theories of belief content in current use. The notion that belief is a computational relation to a formula in an inner language of mental representation and that, therefore, a belief content is an exclusively syntactic construct is best articulated and rationalized by Jerry Fodor in his *Language of Thought* (Harvard UP, 1975) and *RePresentations* (MIT Press, 1981). The notion of belief content as a meaningful sentence in some natural language is quite widespread. The problem here, as mentioned in my talk this morning, is that there are many different, and often conflicting, theories of proposition or meaning as belief content. The literature is immense and grows monthly. (I wish some cool, tenured heads down there would urge a moratorium for some years.) So, instead of sampling the literature for you, I would rather recommend Dennett's own survey of it in "Beyond Belief", in A. Woodfield (ed.), *Thought and Object* (Oxford UP, 1982). Only let

me mention that the tension in the current notion of belief between its psychological (in the head) and semantic (outside the head) dimensions is originally defined and analysed in Putnam's "The Meaning of 'Meaning'", in K. Gunderson (ed.), *Minnesota Studies in the Philosophy of Science*, Vol. 7 (University of Minn. Press, 1975) reprinted in his *Philosophical Papers*, Vol. 2 (Cambridge UP 1975), and Fodor's "Methodological Solipsism Considered as a Research Strategy in Cognitive Psychology", *The Behavioral and Brain Sciences*, 3 (1980), 63-109. For solid and systematic naturalist accounts of belief, take a look at the works of David Armstrong, particularly his *Belief, Truth and Knowledge* (Cambridge UP, 1973), and Fred Dretske's *Knowledge and the Flow of Information* (MIT Press, 1981).

'I am getting tired. What else? *De dicto/de re*? Think of Quine, "Quantifiers and Propositional Attitudes", *Journal of Philosophy*, 53 (1956), 177-87, or Tyler Burge, "Belief De Re", *Journal of Philosophy*, 74 (1977), 338-62, or, for a deflationary (it-is-just-a-way-of-reporting-content) view, John Searle's *Intentionality* (Cambridge UP, 1983), ch. 8. The semantics of belief locutions? Start with Hintikka's *Knowledge and Belief* (Cornell UP, 1962). Unconscious belief? "Unconscious Belief" by A. Collins, *Journal of Philosophy*, 71 (1969), 667-80. Animal belief? Stich's "Do Animals Have Beliefs?", *Australasian Journal of Philosophy*, 57 (1979), 15-28. Modular belief? Stich again in "Beliefs and Subdoxastic States", *Philosophy of Science*, 45 (1978), 499-518, and, good things at the end, Fodor's *The Modularity of Mind* (MIT Press, 1983). He almost figured us out. By the way, the annoying excerpt from Lewis which I read this morning is from his paper "Mad Pain and Martian Pain" published in N. Block (ed.), *Reading in Philosophy of Psychology*, Vol. 1 (Harvard UP, 1980). Any questions?

'Doxoi? What about the man down south you went to see at the end of your trip?'

'Oh, yes. I almost forgot. The man from New Orleans. He gave me this book with a few new articles about belief. The articles have been written for this volume and have never been published before. So take a look at them. Who knows? The man also said how grateful he was to a wonderful group of what he called "fanatic regulars", good friends and good philosophers, and how much he owed to Catalina. But don't ask me what I was doing in New Orleans, OK? And don't smile!'