

# Acting on Knowledge<sup>1</sup>

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[Draft of chapter in J.A. Carter, E. Gordon, and B. Jarvis (eds.), *Knowledge-First*, OUP]

## 1. Analogies between knowledge and action

*Knowledge and its Limits* starts its exposition of the knowledge-first approach to epistemology with a structural analogy between knowledge and action as the two key relations between mind and world (Williamson 2000, pp. 1, 6-8). The aim of this chapter is to reconsider the relation between knowledge and action, and refine the analogy.<sup>2</sup>

Consider the opposition between knowledge-first and belief-first epistemology, the approach still taken for granted without argument by many contemporary epistemologists. Methodologically, knowledge-first epistemology starts with the distinction between knowledge and ignorance, belief-first epistemology with the distinction between belief and unbelief — typically with a further distinction of belief into justified and unjustified, and perhaps another into degrees of belief. On a popular view in the philosophy of mind, the core of all intentional mental life is ‘belief-desire psychology’. Belief and desire are paired. Typically, they are understood as propositional attitudes with opposite *directions of fit* (Humberstone 1992). With belief we are supposed to fit the mind to the world, with desire to fit the world to the mind. In Anscombe’s famous comparison, the shopper tries to fit his purchases to his shopping list, while the detective shadowing him tries to fit

her list to his purchases (1957: 56). Belief and desire are supposed to be mirror images, in a mirror that reverses direction of fit. Thus it is natural to ask: what stands to desire as knowledge stands to belief? When all goes well in fitting the mind to the world, there is knowledge. Therefore, what stands to desire as knowledge stands to belief should presumably be what there is when all goes well in fitting the world to the mind. For example, contrast believing that the window is open with desiring that the window be open. In a simple case of knowing that the window is open, one believes that the window is open because the window *is* open. In a simple case with the reverse direction of fit, the window is open because one desires that the window be open. One intentionally brought it about that the window is open, for instance by opening it or asking someone else to do so. Intentionally bringing something about is what there is when all goes well in fitting the world to the mind. In that sense, *action* is what stands to desire as knowledge stands to belief. Here and henceforth, ‘action’ is to be read as ‘intentional action’; eating is acting but digesting is not. *Knowledge and its Limits* developed that structural analogy between knowledge and action, while reversing the usual explanatory order by treating knowledge as more fundamental than belief and action as more fundamental than desire.

Call ‘cognitive’ those aspects of intelligent life which concern fitting mind to world, ‘practical’ those which concern fitting world to mind. Thus, it is proposed, knowledge stands to the cognitive as action stands to the practical. If so, to marginalize knowledge in one’s account of things cognitive, as many epistemologists have done, is as perverse as it would be to marginalize action in one’s account of things practical. The analogy between knowledge and action favours a knowledge-centred approach to epistemology.

This chapter substantiates the analogy between knowledge and action. However, its way of doing so is not quite the same as in *Knowledge and its Limits*. For if action is the image of knowledge in the mirror reversing direction of fit, it does not follow that *desire* is the image of belief. Desire entered the original analogy because it is paired and contrasted with belief in the standard

internalist picture of belief-desire psychology as the core of intelligent life. But that picture itself goes naturally with belief-first epistemology. If we start with knowledge and action instead, we may see belief as corresponding more naturally to something other than desire. For desire is *not* connected more closely to action than belief is. Indeed, even the once-standard view emphasizes that belief and desire are needed equally and more or less symmetrically as inputs to practical reasoning if it is to issue in action. On that view, to get chocolate, an intense desire for it is impotent without a belief about *how* to get it, just as that belief is impotent without the desire.<sup>3</sup> Beliefs and desires are together meant to supply the *premises* of practical reasoning, its inputs. If we seek something closer to action, as the analogy requires, the obvious place to look is at the *conclusion* of the practical reasoning, its output, not at the premises. But the conclusion of a piece of practical reasoning should not be just another desire; it should be an *intention* to do or be something. Indeed, Anscombe describes the shopping list written by the shopper as an expression of intention, not merely of desire. In forming the intention to  $\phi$ , one puts  $\phi$ ing on one's to-do list. This suggests that we can improve the analogy by substituting intention for desire: knowledge is to belief as action is to intention.<sup>4</sup> This chapter substantiates that more refined analogy.

Where does desire fit into the refined analogy? What is the mirror image of desire as knowledge is the mirror image of action and belief of intention? Suppose that desire is on the same side of the analogy as action. Then, since desire is further than intention from action, the mirror image of desire should be on the same side of the analogy as knowledge, but further than belief from it. That might make it some sort of appearance, suspicion, or level of credence short of outright belief. But then the mirror image of desire is further than desire itself from action, since it is further than outright belief from action, and outright belief is at least as far as desire from action. That is an awkward result, for belief and desire combine as inputs to practical reasoning.

A very different proposal is instead to put desire on the same side of the analogy as knowledge, and assimilate desire to belief. On such a *desire-as-belief* view, very roughly, to desire

something is to believe that it is good. To desire that P is to believe that it is good that P. Here 'it is good that P' is to be read as neither entailing nor presupposing that P; one might say 'it would be good if P' or 'it would be good for it to be the case that P'. The relevant sense of 'good' is generic.<sup>5</sup> In particular, it is by no means exclusively moral; a chocolate cake can look good.<sup>6</sup> On the desire-as-belief view, it is presumably irrational to desire something that is unlikely on one's evidence to be good: a reasonable result. As for direction of fit, the idea is, roughly, that the desire that P requires fitting world to mind with respect to the proposition that P, but fitting mind to world with respect to the proposition that it is good that P (Humberstone 1992: 61).

The desire-as-belief view helps to differentiate desire from intention. Buridan's ass does not and should not believe that the bale of hay on the right is *better* than the bale on the left, or that the bale on the left is better than the bale on the right. He can still avoid starvation by *intending* to eat the bale on the right, and not intending to eat the bale on the left (first), or by intending the reverse. He has no need to *desire* the bale on the right more than the bale on the left, or *vice versa*. In a loose sense, we can apply the term 'practical reasoning' to the not irrational process by which Buridan's ass, if sensible, gets from its initial beliefs and desires to an intention to eat the bale on the right, or an intention to eat the bale on the left, despite the quasi-random nature of the process.

Obviously, the desire-as-belief thesis raises much larger issues about the nature of the good than can be broached here. It will not be assumed in what follows, but it provides one attractive way of incorporating desire into the account below. In any case, we can continue to treat desires as inputs to practical reasoning, and intentions as outputs.

Having selected intention as the most promising analogue to belief, we can now develop the analogy between knowledge and action in more detail, although still somewhat schematically.

## 2. *The analogy with intention*

We can tabulate the proposed analogy:

knowledge	action
belief	intention
truth	success
falsity	failure
fitting mind to world	fitting world to mind
input to practical reasoning	output from practical reasoning

Of course, each column must be understood with respect to a fixed content. On the left-hand side, when the knowledge condition is that one knows that  $P$ , the belief condition is that one believes that  $P$ , the truth condition is that  $P$ , and the falsity condition is that not  $P$ . Similarly, on the right-hand side, when the action condition is that one intentionally  $\phi$ s, the intention condition is that one intends to  $\phi$ , the success condition is that one  $\phi$ s, and the failure condition is that one does not  $\phi$ . If one so preferred, one could use 'realization' or 'fulfilment' in place of 'success' and 'non-realization' or 'non-fulfilment' in place of 'failure'.

Whatever words one uses as the correlates on the action side of 'truth' and 'falsity', care is needed. They must be read with respect to the specific value of ' $\phi$ ' at issue. When I shoot at a target

and miss, my intention to shoot succeeds but my intention to hit the target fails. Similar care is needed with 'intentionally'. When I throw a dart at a dartboard and hit, I intentionally hit some point on the board but do not intentionally hit that particular point.

An apparent asymmetry between the two columns is that the contents on the knowledge side were just treated as propositional while those on the action side were not. More precisely, the schematic letter 'P' used in explaining the left column stands for a declarative sentence (such as 'The door is open'), while the schematic letter ' $\phi$ ' used in explaining the right column stands for a verb phrase (such as 'opens the door'). However, this asymmetry is largely an artefact of presentation. The verb phrase still needs a subject, for instance 'one' in the schemata above. Even in 'One intends to  $\phi$ ', the unpronounced implicit subject of 'to  $\phi$ ' is mandatorily coreferential with 'one'. When the subject of the embedded verb phrase differs from the subject of 'intend', it must be made explicit.<sup>7</sup> For instance, you may intend a room to be used by guests (more awkwardly: you intend that the room be used by guests). A controlling mother may intend her son to become a doctor (more awkwardly: she intends that he become a doctor). Similarly, if I name the shopper who is leaving a trail of sugar 'Perry', I may intend Perry to be warned that he is making a mess, without realizing that I am Perry (at least, in those very words).

Even when the speaker makes the coreference explicit to exclude such confusions of identity, that still makes the intender sound self-estranged. 'Joe intends himself to have a drink' suggests that Joe may have suffered brain damage, and be capable of getting himself a drink only by some compensatory strategy that involves directing himself as he might direct someone else. But that is exactly what one would expect. For if the speaker envisaged a normal case of Joe intending to have a drink, going to the trouble of adding the redundant word 'himself' would be pointless and prolix, thereby violating Grice's conversational maxim of manner (Grice 1989: 27). Thus hearers are entitled to assume that the speaker added 'himself' to signal something abnormal in how the intender represents himself in the intention; the natural hypothesis is that he represents himself in a

way similar to the way he might represent someone else in a typical use of 'Joe intends him to have a drink', that is, in a third-personal way. The difference between 'Joe intends to have a drink' and 'Joe intends himself to have a drink' is a non-semantic conversational effect, predictable on quite general grounds; it provides no evidence against the assumption that the objects of intentions are as propositional as the objects of belief.<sup>8</sup>

Given what has been said, the success condition for an intention to bring it about that P is that *one brings it about that P*, not merely that somehow or other P. If you intend to open the door, but the wind blows it open before you can get there, your intention failed, because you did not do what you intended to do. By contrast, if you merely intend the door to be open, that is a different and perhaps less ambitious intention, whose success condition is just that the door is open. It is crucial to respect such distinctions in what follows.

Like the contents of beliefs, the contents of intentions need not be about the agent. Nevertheless, in practice, it may be more common for intentions than beliefs to be about the agent, and for those that are not to be mediated by those that are. The value of intending the book to be on the table normally depends on also intending to put it on the table, or to ask someone else to do so, or the like. By contrast, the value of believing that the book is on the table does not normally depend on also believing that one can see that it is on the table, or that it appears to one that it is on the table, or the like. The range of what we reasonably believe is much wider than the range of what we reasonably intend. We can see further than we can reach. These 'statistical' differences are significant, both robust and important, but they do not undermine the structural similarities below.

Although the grammatical asymmetry between 'believe that P' and 'intend to  $\phi$ ' can be misleading, as just noted, I will continue to use both forms, since they are the most natural ones. They concentrate attention on typical cases. If anything, they make my task of bringing out the analogies harder rather than easier. Moreover, the 'intend to  $\phi$ ' construction is in principle less limited than it seems, since 'intend X to  $\phi$ ' and 'intend that P' are at least roughly equivalent to the

admittedly rather artificial forms 'intend to be such that X  $\phi$ s' and 'intend to be such that P' respectively, where 'Y is such that P' is read as trivially equivalent to 'P', not as implying some dependence on Y.<sup>9</sup> For instance, you intend to be such that the room is used by guests, and the mother intends to be such that her son becomes a doctor. When all goes well, you are intentionally such that the room is used by guests, and the mother is intentionally such that her son becomes a doctor. The 'intentionally' may require some dependence on you and the mother respectively, even though the 'such that' does not.

The range of the variable ' $\phi$ ' is not limited to paradigmatic actions. One may intend to stay in bed and not to get up, or to be spontaneous, or whatever. For typical action verbs ' $\phi$ ' there is a temptation to treat ' $\phi$ ' as equivalent to 'intentionally  $\phi$ ', because  $\phi$ ing is usually intentional. For instance, most talking is intentional talking. However, the temptation should be resisted, for several reasons. First, it risks making the meanings of ordinary verbs unnecessarily paradoxical, since the content of the intention (talking) would already involve that very intention. Second, it gives the wrong results for agents who classify what they are doing differently from the speaker. Someone may yell without intentionally yelling because their intention is merely to speak. Third, the tendency to treat ' $\phi$ ' as implying 'intentionally  $\phi$ ' may be explained as a Gricean conversational implicature, since once it is commonly assumed that normal  $\phi$ ing is intentional  $\phi$ ing, hearers will expect speakers to warn them of abnormalities, and so take the absence of warning to indicate normality. In any case, it aids clarity to consider verbs where both intentional and unintentional cases are within the bounds of normality. One can drop a hat intentionally or unintentionally. In such examples, the contribution of 'intentionally' stands out.

The difference in grammatical role between the adverb in 'intentionally  $\phi$ s' and the verb in 'knows that P' also obscures the underlying symmetry. For instance, intentionally shouting is an action while knowing that one shouted is a state. Normally, one knows that one shouted after one shouted, as long as one still believes that one shouted, but one intentionally shouts only while



shouting, not as soon as one intends to shout. This looks like a significant metaphysical difference. But it results from our comparing the main verbs of the respective sentences: the main verb of 'I intentionally shouted' is 'shouted' whereas the main verb of 'I knew that I shouted' is 'knew', not 'shouted'. One could restore the grammatical and metaphysical symmetry by comparing 'I was intentionally such that I shouted' with 'I was knowingly such that I shouted', and more generally 'S is intentionally such that P' with 'S is knowingly such that P', sacrificing linguistic naturalness for the sake of fine-grained accuracy. For present purposes, the more natural constructions are good enough.

### 3. *Knowing is to believing as acting is to intending*

We can now develop the structural analogy in more detail.

The most obvious difference between knowledge and belief is that knowledge entails truth while belief does not; it is compatible with falsity. If you know that P, it follows that P, but sometimes even though not P you still believe that P.<sup>10</sup>

The most obvious difference between action and intention is that action entails success while intention does not; it is compatible with failure. If you intentionally  $\phi$ , it follows that you  $\phi$ , but sometimes even though you never  $\phi$  you still intend to  $\phi$ .

Since knowledge entails truth and belief does not, *a fortiori* belief does not entail knowledge, otherwise it would have to entail truth too. But it is very plausible that the converse does hold: knowledge entails belief. When you know that P, you believe that P. Given a case where you know that P, typically in some possible variant case you believe that P but things went wrong

earlier in the process and not P; since your belief is just as firm in the former case, you believe that P there too.<sup>11</sup>

Since action entails success and intention does not, *a fortiori* intention does not entail action, otherwise it would have to entail success too. But it is very plausible that the converse does hold: action entails intention. When you intentionally  $\phi$ , you intend to  $\phi$ . Given a case where you intentionally  $\phi$ , typically in some possible variant case you intend to  $\phi$  but things go wrong later in the process and you fail to  $\phi$ ; since your intention is just as firm in the former case, you intend to  $\phi$  there too.

Knowledge entails true belief. If one knows that P, P and one believes that P. But not the converse: not even true belief entails knowledge. Sometimes, even though P and one believes that P, one does not know that P. If Mary is in town and I believe that she is in town simply through misidentifying someone else as her, I do not know that she is in town.<sup>12</sup>

Action entails successful intention. If one intentionally  $\phi$ s, one  $\phi$ s and intends to  $\phi$ . But not the converse: not even successful intention entails action. Sometimes, even though one  $\phi$ s and intends to  $\phi$ , one does not intentionally  $\phi$ . A would-be assassin may accidentally run over and kill the man he intends to kill, without intentionally killing him.

Since belief and truth are necessary but not even jointly sufficient for knowledge, many epistemologists have found it natural to ask: what must be added to belief and truth to make knowledge? Schematically, they seek a solution in 'X' of the equation:

$$\text{knowledge} = \text{belief} + \text{truth} + X$$

In other words, a necessary and sufficient condition for S to know that P is to have this conjunctive form: (K1) S believes that P; (K2) P; (K3) S satisfies condition X with respect to 'P'. Such a solution might be regarded as an analysis, or even definition, of knowledge, stating not just necessary and sufficient conditions for knowing but *what knowledge is* in some more fine-grained sense. A crucial

constraint on a solution is that X must not be specified in terms of 'know', on pain of circularity. For example, one would get an almost trivially true equation by substituting 'S knows that P' for 'X', but it would not constitute a definition or analysis of the kind sought.

Since intention and success are necessary but not even jointly sufficient for action, many philosophers of action have found it natural to ask: what must be added to intention and success to make action? Schematically, they seek a solution in 'Y' of the equation:

$$\text{action} = \text{intention} + \text{success} + Y$$

In other words, a necessary and sufficient condition for S to intentionally  $\phi$  is to have this conjunctive form: (A1) S intends to  $\phi$ ; (A2) S  $\phi$ s; (A3) S satisfies condition Y with respect to ' $\phi$ '. Such a solution might be regarded as an analysis, or even definition, of action, stating not just necessary and sufficient conditions for action but *what action is* in some more fine-grained sense. A crucial constraint on a solution is that Y must not be specified in terms of 'action', on pain of circularity. For example, one would get an almost trivially true equation by substituting 'S intentionally  $\phi$ s' for 'Y', but it would not constitute a definition or analysis of the kind sought.

The attempt to solve the equation for knowledge generated an extensive but still unsuccessful research programme. Many solutions were proposed, of increasing complexity, but unless circular always eventually succumbed to counterexamples, of increasing complexity, to their necessity or sufficiency. The mind-to-world direction of fit for belief suggests an instructive case in point: causal theories of knowledge. At its simplest, such a theory identifies X with the condition that S believes that P because (causally) P. Such theories succumbed to the problem of deviant causal chains: the causation from truth to belief may be of the wrong kind for knowledge. For example, a brain disease causes someone to misinterpret his doctor as telling him that he has that disease, which causes him to believe that he has it. The three conditions (K1)-(K3) hold, but he does not know

that he has the disease. Attempts are still made to solve the problems for attempted analyses of knowledge by adding epicycles, but none has worked.<sup>13</sup>

The attempt to solve the equation for action generated an extensive but still unsuccessful research programme. Many solutions were proposed, of increasing complexity, but unless circular always eventually succumbed to counterexamples, of increasing complexity, to their necessity or sufficiency. The world-to-mind direction of fit for intention suggests an instructive case in point: causal theories of action. At its simplest, such a theory identifies  $Y$  with the condition that  $S \phi$ s because (causally)  $S$  intends to  $\phi$ . Such theories succumbed to the problem of deviant causal chains: the causation from intention to success may be of the wrong kind for action. For example, my intention to drop the Ming vase causes my hands to sweat and become slippery, which in turn causes me to drop the vase. The three conditions (A1)-(A3) hold on the proposed reading, but I do not intentionally drop the vase. Attempts are still made to solve the problems for attempted analyses of action by adding epicycles, but none has worked.<sup>14</sup>

#### *4. Directions of explanation*

Why expect the equations for knowledge and action in section 3 to have solutions? One might think: since belief and truth are parts of knowledge, and intention and success are parts of action, it is just a matter of identifying the respective remaining parts. But such thinking relies on a naïve application of the part-whole distinction. Here is an analogy. Being coloured is necessary for being red. One might therefore wonder what other necessary conditions for being red one must add to being coloured to make a condition sufficient as well as necessary for being red. Such a conjunction, presented in terms of those individually necessary and jointly sufficient conditions, might be

regarded as a definition of redness, an analysis of being red into its component parts. This would correspond to the attempt to solve this equation in the variable 'Z':

$$\text{red} = \text{coloured} + Z$$

But what could Z be? One gets an almost trivially true equation by substituting 'red' itself for 'Z', or 'red if coloured', but that would violate the usual non-circularity constraint. Even if being red can be reduced to a property specified in physical terms, that would not fit the displayed pattern, since it would lack 'coloured' as a component. The moral is: do not assume that a necessary condition for something is a component of a non-circular definition or analysis of that thing. Thus, although knowledge entails belief and truth, and action entails intention and success, that is not good evidence that those equations for knowledge and action have solutions.

The equations have a more specific attraction for *internalists* about the mind, who hold that purely mental phenomena are constitutively (not causally) independent of the world external to the subject. To them, the equations look like promising first steps towards separating out knowledge and action into their postulated purely mental and purely non-mental components, with belief and intention on the purely mental side and truth and success on the purely non-mental side, at least to a first approximation.

Of course, even internalists will admit that it is not as simple as that. For one thing, we have beliefs about our mental states: in particular, we have beliefs about our own beliefs and about our own intentions. Thus truth does not always fall on the non-mental side. We also have intentions about our own mental states: for instance, to think about a mathematical problem. Thus success does not always fall on the non-mental side either. For another thing, belief and intention are not purely mental states by internalist standards, since their contents typically depend constitutively on the external environment (Putnam 1973, Burge 1979). The internalist aspiration to separate the purely mental from the purely non-mental remains at a largely programmatic stage. Indeed, the

failures of all the many attempts to analyse knowledge and action in such terms provide powerful inductive evidence against those reductive ways of thinking. The project of analysis is, in Imre Lakatos's phrase, a degenerating research programme.

Nor should we assume that the constitutive dependence of belief and intention on the external is limited to their contents. It extends to the attitudes to those contents, too. To be *intentions*, rather than mere fantasies, mental states must be somehow poised to produce action. And to be *beliefs*, rather than mere fantasies of another flavour, other mental states must be somehow poised to lead through practical reasoning to intentions. Of course, the contents of some beliefs never in fact occur as premises in practical reasoning, and the contents of some intentions never in fact occur as a conclusion in practical reasoning (intentions may form through some non-rational process). Nevertheless, belief is a sort of state disposed to make the premises of practical reasoning, and intention is a sort of state disposed to make the conclusion of practical reasoning, even if those dispositions are not always manifested.<sup>15</sup> No belief's content immunizes it from relevance to action, for example in deciding whether to take a bet, how to answer in a quiz, or what to say in conversation. If you have no disposition whatever to rely on it as a premise in practical reasoning, it is no belief. This is not to deny that a brain in a vat could have beliefs and intentions, linked by practical reasoning, for the brain's intentions could still be disposed to produce action, even if its unfortunate circumstances prevent the disposition from manifesting itself appropriately.<sup>16</sup> But without even such unmanifested dispositions, we have at best a system of states misinterpretable as beliefs and intentions.

It is obviously wrong-headed to try to understand intention without reference to action. Given the connection between belief and intention, it is also wrong-headed to try to understand belief without at least indirect reference to action. Furthermore, if knowledge is to belief as action is to intention, it is wrong-headed to try to understand belief without reference to knowledge, or to try to understand intention without at least indirect reference to knowledge.

A natural starting-point is the case of acting on what one knows. Practical reasoning is the primary nexus between knowledge and action; it puts the two sides of the structural analogy together. In basic cases of acting on what one knows, causation flows from the external environment through perception to the brain and back through intervention into the external environment. Of course, not all knowledge is just perception of the external environment, not all action is just intervention into that environment, and beyond the most basic cases complex feedback loops involve cycles of both perception and action. Not only does knowledge generate action, action generates knowledge, for example through actions of looking, listening, touching, and investigating more generally. It is not mysterious in principle why the ability to acquire knowledge and act on it should give a creature an advantage in dealing with its environment (including other members of the same species). Presumably, the gross evolutionary advantage of having a mind is that it enables one to interact with a complex, changing environment in ways more complex and flexible than can mindless things like plants. Acting on knowledge is the central case of such interaction.

When all goes well in one's whole cognitive-practical system (not just one's brain), one acts on what one knows. But things often go badly. One believes that P when not P, or (perhaps as a consequence) intends to  $\phi$  but never  $\phi$ s. In practical reasoning, the false belief plays the same local role as knowledge (it makes a premise), and the failed intention plays the same local role as action (it makes the conclusion), but they do not play the same global roles. Such malfunctions have to be understood in relation to what happens when the whole system is functioning well.

Why do mere true belief (short of knowledge) and mere successful intention (short of action) not constitute functioning well? In such cases, one may still get what one wants or needs. But for a system to bring about what is immediately needed or wanted is not generally enough for it to be functioning well. For example, suppose that it is the function of the heart to pump the blood. Imagine that, as a result of an injury, someone's heart in some bizarre way causes their blood to circulate by means other than pumping. The heart brings about what is immediately needed and

wanted, but it is not functioning properly, since it is not *pumping* the blood. Similar problems arise even if the function of the heart is characterized more abstractly, for instance as being to regulate the flow of blood. In some still more bizarre way, the heart may cause something else to intervene and regulate the flow of blood. Again the heart brings about what is immediately needed and wanted, but it is not functioning properly, since it is not *regulating* the flow of blood. Thus, on quite general grounds, one would expect cases where the cognitive system malfunctions, there is no knowledge, but there is still true belief. On the same general grounds, one would expect cases where the practical system malfunctions, there is no action, but there is still successful intention.

When the cognitive-practical system functions well, one acts on what one knows. Other cases resemble that nexus locally but not globally. On the basis of such local resemblances, the nexus still counts as practical reasoning, the premises still count as believed, even if not known, and the conclusion still counts as intended, even if not acted on. Belief is what tends to play the local role of knowledge with respect to action, whether or not it plays the global role. Similarly, intention is what tends to play the local role of action with respect to knowledge, whether or not it plays the global role. These remarks are too schematic to constitute *analyses* of belief and intention in terms of knowledge and action. Nevertheless, they involve a direction of explanation from more global distinctions between good and bad functioning to more local distinctions neutral between good and bad functioning. Cognitive malfunctioning is understood as a deviation from good cognitive functioning, practical malfunctioning as a deviation from good practical functioning.

A natural worry about that order of explanation is that it seems to turn its back on an explanatory strategy that has proved immensely successful in the natural sciences and elsewhere: understanding a system by analysing it into its local components and studying their local interactions. To understand *how* the heart pumps blood, we must employ that strategy. Similarly, to understand *how* agents act on what they know, won't we have to analyse the cognitive-practical system into local components such as belief and intention, and study their local interactions with



each other and with relevant bits of the environment? Don't cognitive science and cognitive psychology flourish by already following such a decompositional strategy? Of course, we have already seen that categories such as belief and intention are themselves functional, in ways unsuited to the full decompositional strategy. Nevertheless, they might be regarded as somehow prefiguring the sought-for analyses in more detail than knowledge and action do.

What is not in question is that, in any particular case, knowledge and action, or belief and intention must be *implemented* by specific mechanisms susceptible to decompositional analysis. Corresponding explanatory theories of those mechanisms can in principle be given. But, in general, a given functional kind can be implemented by many different mechanisms. For example, pumps can be classified by how they move the fluid: there are direct lift, displacement, and gravity pumps. Similarly, a theory of a mechanism that implements one sort of knowledge will not apply to knowledge of other sorts. It may apply to visual but not to auditory knowledge, or to human but not to extra-terrestrial knowledge. A trade-off is likely between a more detailed theory at a lower level of generality and a less detailed theory at a higher level of generality. The choice depends on the theorist's aims.

Like most philosophers, epistemologists and philosophers of action typically operate at a very high level of generality. They seek and propose principles about, or analyses of, *all* knowledge or belief, *all* action or intention — actual or possible. Although for obvious reasons their examples tend to be of human knowledge or belief, human action or intention, they rarely write any such restriction into their theories. This aspiration to a high level of generality helps explain their attitudes to cognitive psychology. Even if it were discovered that all human knowledge had a given property  $\pi$ , most epistemologists would not take that to justify including  $\pi$  in their theory of knowledge if there could be creatures whose knowledge lacked  $\pi$ . Indeed, theories in epistemology and the philosophy of action are typically supposed to apply to infinite minds as well as finite ones. Analyses are supposed to provide necessary and sufficient conditions.

Thus epistemologists and philosophers of action typically lack the implementation-oriented aims and methods that would justify them in applying the decompositional strategy. Belief-centred epistemology and intention-centred philosophy of action should gain no prestige by association with the achievements of that strategy in the natural and social sciences; the level of generality is too different. In both philosophy and the natural and social sciences, rigorous methods can often be applied at a high level of generality when the decompositional strategy is inappropriate. If you want to find out in general how many objects of a given shape and size (say, balls) can be packed into a container of a given shape and size (say, a cubical box), don't ask what the objects are made of; use geometry, not chemistry. In knowledge-centred epistemology, logic and mathematics are applicable at equally high levels of rigour and generality: for instance, epistemic logic and Bayesian probability theory. The decompositional strategy poses no threat to epistemology centred on knowledge rather than belief or to philosophy of action centred on action rather than intention.<sup>17</sup>

Another feature of epistemology and the philosophy of action also distances them from descriptive, decompositional inquiry: both are typically pursued as normative or prescriptive inquiries, by internalists as much as by externalists. They discuss reasons for belief and reasons for action, apply standards of rationality to both, and assess practical reasoning as valid or invalid. The distinction between justified and unjustified belief is central to much internalist epistemology. Violations of the norms are recognized as such, in order not to be counted as counterexamples to principles about the normative categories.

The normative aspirations of epistemology and the philosophy of action are sometimes thought to pose a different threat to the externalist forms of those disciplines, on the grounds that agents can only be governed by norms accessible to them. That is, agents are supposed to be always in principle in a position to determine whether they satisfy a given governing norm. It is then assumed that internalist norms of rationality or justification are accessible to agents in that sense, while externalist norms are not: in sceptical scenarios, we are in no position to recognize our own

failures to know or to act. Although we can be judged with respect to norms that obviously violate the accessibility constraint, such as norms of keeping our promises and of obeying the law, internalist norms of rationality are supposed to be somehow special in a sense that excludes most of the familiar norms. But it is arguable that *no* non-trivial norms satisfy the internalist accessibility condition.<sup>18</sup> If so, our only non-trivial norms are externalist. When we recognize that the internalist constraint cannot be met, our reaction should not be to seek norms that come as close as possible to meeting the internalist constraint, however many epicycles that quest forces us to add. Rather, we should try to understand the mistakes about normativity that made such a constraint seem compulsory (rather than merely attractive) in the first place. Having done that, we should be open to simpler, more natural, and differently motivated norms, even if they violate the internalist constraint quite blatantly.<sup>19</sup>

The picture of mind outlined above predicts knowledge norms of a functional sort for both action and belief. When practical reasoning functions well, one acts on what one knows: one uses the premise that P only if one knows that P. Thus, if practical reasoning uses the premise that P when the agent does not know that P, the reasoning has functioned badly. That is a natural reading of the *knowledge norm for action*: act only on what you know (see Hawthorne and Stanley 2008 for more discussion). Moreover, since any belief plays the local role of knowledge in practical reasoning, as a premise, any belief short of knowledge can make practical reasoning malfunction. That is a natural reading of the *knowledge norm of belief*: believe only what you know. When all goes well cognitively, one believes that P only if one knows that P. When one merely believes that P without knowing that P, something has gone wrong cognitively. Similarly, when all goes well practically, one intends to  $\phi$  only if (sooner or later) one intentionally  $\phi$ s. When one merely intends to  $\phi$  but never intentionally  $\phi$ s, something has gone wrong practically.

Much exploration is needed to identify appropriate analogues on one side for phenomena on the other. Here are three examples.

First, *trying*, intermediate between intending and acting. Trying to  $\phi$  entails more than intending to  $\phi$ , but less than intentionally  $\phi$ ing. Presumably, intentionally  $\phi$ ing entails trying to  $\phi$ , which in turn entails intending to  $\phi$ , but both converses fail. Since trying to  $\phi$  does not entail  $\phi$ ing (some attempts fail), *a fortiori* it does not entail intentionally  $\phi$ ing. It is less trivial that intending to  $\phi$  does not entail trying to  $\phi$ . Attempts vary greatly in their seriousness, from the well-prepared climber struck by lightning just before reaching the summit to the ignorant tourist who gives up as soon as the mountain comes into view. Although one might try to classify even the mere intention to  $\phi$  as a minimal attempt to  $\phi$ , it is more natural to classify someone who died of a heart attack immediately on forming the intention to become a lion-tamer as not having had the chance to try. Trying resembles acting not just in the local context of practical reasoning (intention) but further forward downstream (towards its destination), although the resemblance need not go all the way. What is the analogue of trying with the opposite direction of fit? Suppose that the analogy works for a propositional attitude we may call *blanking*. Thus blanking is intermediate between believing and knowing:

knowledge	action
blank	attempt
belief	intention

More specifically, knowing that P entails blanking that P, which in turn entails believing that P, but both converses fail. Indeed, blanking that P does not even entail that P. Blanking resembles knowing not just in the local context of practical reasoning (belief) but further back upstream (towards its source), although the resemblance need not go all the way. We can expect a wide range of cases, just as for trying. But capricious, utterly irrational belief should not be enough for blanking. The agent's cognitive faculties should not be malfunctioning too badly too close to their use in practical reasoning. Perhaps agents with good general cognitive dispositions in bad sceptical scenarios still blank that P when they believe that P. We might loosely call blanking 'believing reasonably'.

Second, an example from the other side of the analogy: (sensory) *perceiving*. We may assume that perceiving that P entails that P, indeed, that it entails knowing that P (Williamson 2000: 33-41). In some ways, perceiving is an even closer analogue than knowing to acting. Just as acting typically involves direct output from the agent to the external environment, so perceiving typically involves direct input from the external environment to the agent. Just as acting involves a causal flow from the agent, which constrains what can be intentionally done, so perceiving involves a causal flow to the agent, which constrains what can be perceived. For instance, if it is necessary that P, only in very limited cases can one intentionally be such that P or sensorily perceive that P; there is no similar limitation on knowing that P. But to replace knowing by perceiving as the analogue of acting would also incur significant theoretical costs, for the contents of perception play no distinctive role in practical reasoning; any content of knowledge will do. The underlying difference is that the category of practical reasoning is not perfectly symmetrical between the two sides of the analogy, since it is constrained primarily in terms of its output. In principle we could have an analogous category constrained primarily in terms of its input, to the contents of perception; but such a category looks much less interesting, since it leaves the point of the reasoning unspecified. It is more fruitful to keep knowing as the analogue of acting, while analogizing the special role of sensory perception in knowledge to the special role of something like bodily action in the more general category of action.<sup>20</sup>

Third, *reasons for action*. Given limitations of space, suffice it here to say that the evidence, though easy to misconstrue, strongly indicates that the reasons for which one acts are truths one knows. Anything else at best appears to be a reason for which one is acting. There are often said to be two sorts of reasons, objective reasons and subjective reasons, but that is like saying that there are two sorts of gold, objective gold and subjective gold, or real gold and apparent gold. Appearing to be something is not a way of being that thing.<sup>21</sup>

One methodological advantage of maintaining this close overall analogy between epistemology and the philosophy of action is that it enhances our ability to test theories on each side, because their analogues on the other side may be easier to evaluate. For instance: sceptical arguments tempt us to deny that we ever really know anything, but are we tempted to deny that we ever really act?

## 6 Conclusion

‘Knowledge first’ is not just a slogan in epistemology. It adverts to a systematic, unified view of the mind in the world, on which the central feature of intelligent life is acting on what one knows. In that sense, the view gives both acting and knowing explanatory priority over believing and intending. But if we ask what makes such action intelligent, the answer lies in its connection with knowledge. That makes sense of the slogan ‘Knowledge first’ not only in epistemology, but also in the philosophy of mind and action.

On the view sketched in this chapter, what is fundamental to mind is not a bunch of monadic ‘qualitative’ properties making up an inner world, but a network of relations between the agent and

the environment: relations such as seeing, referring, loving, hating, and all sorts of ways of acting intentionally on things. It is an illusion that the way to pure mind is by abstracting from such relations, as wrong-headed as the idea that the way to pure soccer is by abstracting from the other team. To eliminate the other terms of the relations is to eliminate what matters about mind. The *point* of mind is to involve the world. Far from obscuring the nature of mind by contaminating it with impurities from the external environment, knowledge and action are the fullest expressions of mind.

Epistemological responses to knowledge-first epistemology often fail to engage with this bigger picture. From the standpoint of an abductive comparison of theories, they are just not offering a clear alternative view of the mind in the world to rationalize their dissent from the epistemological details. At that level, they are not even competitors. Epistemology is always guided by background assumptions about the nature of mind. When those assumptions are controversial, or ought to be, we need to make them explicit, to reflect on them critically. It would be foolish to evaluate Descartes' epistemology without considering its relation to his philosophy of mind and body — yet it is still common to rely on more or less Cartesian ways of thinking in epistemology without reflecting on their relation to the philosophy of mind. In effect, this chapter has developed more specific challenges to putative alternatives to the knowledge-first approach. How do they theorize the relation between the two directions of fit? Do they accept knowledge as the epistemological analogue of action? If not, what — if anything — do they put in its place? Do they even accept the centrality of action to the philosophy of action?

## Notes

- 1 Earlier versions of this material were presented at the Universities of Geneva, Oxford, Stanford, Sussex, and Xiamen, the Collège de France, a conference on the Factive Turn at the University of Vienna on the Factive Turn, a Summer School at the University of Cologne, and as the 2015 Gustav Bergmann Lecture at the University of Iowa. I thank the audiences there and two anonymous referees for helpful comments and questions.
- 2 For exposition, development, and defence of my knowledge-first approach in general see Williamson 2007, pp. 247-277, 2009, 2011, 2013a,b. For an account of action in a similar spirit to the one here see Levy 2013. See also Hyman 2015 for an account of action coordinated with a broadly knowledge-first approach to epistemology. Of course, some analogies between knowledge and action can be developed even outside the knowledge-first framework; Sosa 2010 is a recent example.
- 3 The belief might be a partial degree of belief.
- 4 See Holton 2008 and 201X for an extended case for the analogy between outright belief and outright intention, both understood as stable all-or-nothing states.
- 5 Humberstone 1987 presents a strong case for the desire-as-belief view, based on considerations of expressibility. That Humberstone uses 'desirable' where I use 'good' does not reflect any disagreement between us. For a critique of the desire-as-belief view see Lewis 1988 and 1996. For two responses to Lewis see Byrne and Hájek 1997 and Bradley and List 2009. However, unlike Humberstone, Lewis and those responding to



him focus on degrees of desire as degrees of belief, whereas the present concern is with outright desire as outright belief.

6 Of course, one can always refuse to believe that things are as they appear. The cake may look delicious even after one has tried it and knows it to be disgusting (compare the Müller-Lyer illusion). One may still feel a strong urge to eat the cake, which one controls, because one does not believe that it is good to eat it. On the desire-as-belief view, one does not desire to eat it; one refuses the temptation to form the desire/belief. That verdict is supported by the absence of any such desire from one's practical reasoning, which is quite different from giving some weight to it in the reasoning but letting it be outweighed by other desires. Talk of the intensity of desires may conflate several independent dimensions: how good one is tempted to believe something to be, how strong the temptation is, and how far one gives way to it.

7 'Subject' here means the grammatical subject of the verb, rather than the agent of the action described; the subject in 'I intend to be cheered' is 'I', not the cheerers.

8 To some ears, 'Joe intends himself to have a drink' sounds less strange when the time of the intended drinking is comparatively distant. Presumably, the reason is that one's present relation to one's actions in the distant future tends to be less distinctively first-personal in nature than is one's present relation to one's actions in the immediate future (though not wholly third-personal either).

- 9 The equivalence is like that between the sentences  $\lambda x(A)t$  and  $A$  in a formal language, where in  $\lambda x(A)t$  the predicate  $\lambda x(A)$  is applied to the singular term in subject position  $t$ , and the variable  $x$  does not occur free in  $A$ . Note also that one must take care when generalizing the equivalences: the definite description in 'intend the  $F$  to  $\phi$ ' may easily be read as taking wider scope than 'intend', and so must then be read accordingly in 'intend to be such that the  $F \phi$ '.
- 10 People are occasionally misled into denying that knowledge entails truth. Telling a story dramatically, one may say "He knew that the shop was only a mile away, so he decided to walk", then later reveal that he was mistaken: the shop was twenty miles away. In such cases, one uses language projectively, to show how things looked from the protagonist's point of view, not how they really were. One trusts hearers to understand, at least by the end of the story (unfortunately, if they are literal-minded, they may not). One might just as easily have said "The shop was only a mile away [...] it turned out to be twenty miles away", speaking projectively. One would not thereby have been using the phrase "a mile" to mean twenty miles. Similarly, when one said "He knew that the shop was only a mile away [...] it turned out to be twenty miles away", one did not thereby use "know" non-factively. *Any* words whatever can be used projectively, so projective uses show nothing special about the meaning of any word in particular.
- 11 One might get the contrary impression because it is sometimes misleading to attribute belief but not misleading to attribute knowledge. If you know that I know that Mary is in China, it would be misleading for you to *say* 'TW believes that Mary is in China', because doing so might cause your hearers falsely to believe that you do not know that I know that Mary is in China. For they might reason thus: if you did know that I knew that Mary

was in China, you would have made the more informative and useful statement ‘TW knows that Mary is in China’ instead; therefore, since you didn’t make the latter statement, you didn’t know that I knew that Mary was in China. Thus, on the assumption that knowledge entails belief, we can still explain why saying ‘TW believes that Mary is in China’ is true but conversationally misleading when saying ‘TW knows that Mary is in China’ is true and not conversationally misleading (Grice 1989). Such cases pose no threat to the proposed entailment from knowledge to belief. For more discussion of the relation between knowledge and belief see Williamson 2000: 41-8. One might even suspect that believing is too weak a condition to be appropriately paired with knowledge (for arguments that belief is weak see Hawthorne, Rothschild, and Spectre 2015). Perhaps knowing that P requires being *sure* that P (as proposed by Ayer 1956, p. 34), in an appropriately undemanding non-Cartesian sense of ‘sure’, not just *believing* that P (thanks to Jeremy Goodman for discussion on this issue). One might understand both being sure and intending as states of having *made up one’s mind*: to be sure that P is to have made up one’s mind that P; to intend to  $\phi$  is to have made up one’s mind to  $\phi$ . The present paper could easily be reworked along such lines. For the sake of familiarity, I stick with ‘belief’ here.

- 12 We sometimes sloppily count all the students who gave the correct answer in a quiz as ‘knowing the answer’, even if they were just guessing. That does not show that ‘knowledge’ ever means true belief. We sloppily count them as knowing even if they do not believe their answers to be correct.
- 13 Goldman 1967 is the classic presentation of a causal theory of knowledge, already elaborated in response to various difficulties. He later abandoned it (Goldman 1976),

though for different reasons from those discussed here. Shope 1983 details many failed attempts to analyse knowledge.

14 The essays on action in Davidson 2001 provide a good entry-point for this debate. See White 1968 for the state of philosophy of action simultaneous with early reactions to Gettier. Of course, as with accounts of knowledge in terms of belief, accounts of action in terms of intention do not all take the form of the displayed equations; see Sosa 2015. Obviously, space and time do not permit arguments here and now against all the attempts that have been made.

15 The disposition must be stronger than the overridden disposition in fn. 6 to assume that the chocolate cake is delicious.

16 When an unkind external environment makes reference fail, something locally like practical reasoning may occur even though no content is provided for what plays the local role of knowledge or action, so there is no content to be believed or intended, so no belief or intention. The local role determines at most the attitude of belief or intention to the content, if any. Nor is it obvious that what makes reasoning practical is local.

17 This chapter discusses general states and actions themselves, rather than our words or concepts for them. But the internalist order of explanation is no better supported at the level of linguistic understanding or conceptual grasp. Native speakers of a natural

language typically understand its common words not by dictionary definitions in simpler terms but by paradigm examples of its applications (in any case, they could not grasp all concepts by analysis into simpler concepts, on pain of an infinite regress). Even 'know' and 'act' can be learnt through paradigm examples. There is no evidence that paradigms of believing and of intending are in any sense prior to paradigms of knowing and of acting. If anything, one might expect the opposite, since the external conditions on knowing and acting make their absence more open to third-party observation. For a discussion of recent psychological evidence that the ability to ascribe knowledge is basic to the human capacity for mindreading see Nagel 2013.

- 18 See the anti-luminosity argument in Williamson 2000. For an explanation of how it avoids the objection in Berker 2008, see Srinivasan 2015. Srinivasan 201Y explores the normative implications of the arguments.
- 19 For a fuller discussion of some of the confusions underlying internalist thinking about norms of belief see Williamson 201X.
- 20 The asymmetry noted in the text may also help to explain why closure principles for action and intention sound so much worse than the corresponding closure principles for knowledge and belief. For instance, suppose that it is clear to all concerned that 'She avenged an insult' entails 'She was insulted'. Then, at least usually, when 'She knows/believes that she avenged an insult' is true, so is 'She knows/believes that she was insulted'. But it is much less clear that, even usually, when 'She will intentionally avenge an insult' is true, so is 'She will intentionally have been insulted', or when 'She intends to avenge an insult' is true, so is 'She intends to have been insulted'. In this

respect too, 'intend' may behave more like 'perceive': it is not clear that, even usually, when 'I could see that she had avenged an insult' is true, so is 'I could see that she had been insulted' (my visual perception that she had avenged an insult might depend on background non-visual knowledge that she had been insulted).

- 21 For relevant considerations see Hyman 1999, 2010, and 2015, Alvarez 2010, and Hawthorne and Magidor 201X. Philosophers often seem to misunderstand the bearing of 'reasons' through a literal-minded treatment of projective talk of the sort mentioned in fn. 10, often converging with internalist preconceptions.

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