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The Logic of Knowing How and Ability

DAVID CARR

1. *Two Senses of 'Can'*

In a recent work, Geach makes the following observation respecting different concepts of 'can'.

> . . . some people may have felt discomfort at my not drawing in relation to God, the sort of distinction between various applications of 'can' that are made in human affairs; the 'can' of knowing how to, the 'can' of physical power to, the 'can' of opportunity, the 'can' of what fits in with one's plans. (*Providence and Evil*, pp. 21–22)

I am not about to discuss philosophical theology for my interest lies precisely in certain applications of 'can' in human rather than divine affairs. In recent years the distinction between the second and third senses of 'can' mentioned by Geach has received much attention in relation to the philosophical problem of free will. I believe that the distinction between his first and second senses of 'can' is of equal importance for an understanding of various problems in philosophical psychology, epistemology and the philosophy of action, and it is this distinction on which I intend to concentrate. It seems almost churlish to discuss the concept of 'knowing how' without at least mentioning the name of Gilbert Ryle, who did perceive so clearly the importance of this notion for a clear understanding of the nature of psychological phenomena. But whilst I am far from finding Ryle's careful and detailed account of knowing how, entirely without interest, I would include myself amongst those of his critics who remain dissatisfied with his rather indiscriminate dispositional analysis of a whole battery of what seem to be quite disparate psychological concepts and I do not think that a proper understanding of knowing how is attainable by this route. It seems likely that some features of human life and behaviour are indeed best understood in dispositional terms (as propensities, habits, pronenesses etc.) but that being so, it is all the more important for the philosophical

psychologist to distinguish what are, from what are clearly not, dispositions. One familiar criticism[1] of Ryle objects that reports of mental acts or states (e.g. belief reports) far from being indirect or disguised ways of talking hypothetically about tendencies to behave, constitute rather, categorical explanations of forms of behaviour. According to this criticism psychological reports instead of being merely shorthand versions of hypothetical conditional statements about possible behaviour, have a proper place in the antecedent position of conditionals about human conduct.

In this paper I shall accept that the criticism just indicated also applies to Rylean analyses of reports of knowing how and ability. It seems to me that our common ascriptions of knowing how and ability to agents, enjoy the same sort of explanatory role in human affairs, as has been claimed for reports of belief and other mental acts. In what follows, I shall treat sentences about knowing how and ability as categorical reports of states or conditions of a person or agent apt for the bringing about of certain patterns of conduct, and I shall have no more to say about Ryle's analyses of such sentences. I shall attend rather, first of all, to some recent observations respecting the logic of ability statements which are, I think, suspect, due to their neglect of certain important logical features of, and differences between, sentences about knowing how and ability. I shall then proceed to attempt to elucidate these differences.

Of more formally minded philosophers, Geach appears to be one of the few to have thought the distinction between the 'can' of knowing how and the 'can' of physical power even worth remarking. Surprisingly one of the most exciting and important of recent works on human agency fails to make clear the difference between these two notions. Von Wright, a philosopher usually very sensitive to distinctions of this kind, states in *Norm and Action*:

> From the discussion of acts, we now move to a discussion of abilities, and the notion of 'can do' .... To be able to do some act we shall say, is to know how to do it. Sometimes we shall also say that it is to master a certain technique (p. 48).

And later in the same section he says:

1 Two sources of this criticism of Ryle are *Mental Acts* by P. T. Geach (London, R.K.P., 1957) and *A Materialist Theory of Mind* by D. M. Armstrong (London, R.K.P., 1968).

> Ability to do a certain act must be distinguished from ability to perform a certain activity such as to walk, to run or to speak. Of the ability to perform a certain activity we do not normally use the phrase 'know how' (p. 49).

The second statement I have quoted, shows that in so far as Von Wright does draw the distinction I am interested in, he appears to identify it with the distinction between the ability to perform an act and the ability to engage in an activity. We cannot properly be said, he claims, to know how to perform activities. Now whilst this seems to be true with respect to the examples he offers, it is clearly just false in general in so far as agents are correctly said to know how to play cricket, perform on the piano, drive a car etc. Thus the distinction between ability with respect to activities and ability to perform acts, cuts across the distinction between 'knowing how' and 'being able' or 'having the physical power to'. Von Wright doesn't however, make very much use of this latter distinction at all, but with regard to the construction of his T-calculus of action, this neglect has no serious consequences.

Turning to Kenny's discussion of ability in his recent work *Will, Freedom and Power* however, the consequences of a failure to distinguish between knowing how and ability do seem more serious. Though Kenny lists no less than twenty-two uses of 'can' some of which seem to be expressions of knowing how (e.g. 'she can speak Russian', 'anyone can learn (i.e. come to know how) to drive a car') these are all subsumed under the general heading of 'ability'. Kenny proceeds to doubt in his discussion that there can be a logic of ability, denying first of all that the familiar modal law CpMp holds for ability. He criticizes Geach for arguing in *Mental Acts* that what a man in fact does, he thereby can do.[1] Kenny's counter-examples to the Geach view, include the Pope 'speaking' English which has been learned by heart without an understanding of the words, and the case of a hopeless darts player who succeeds in hitting the bull only once in a lifetime. He sees problems himself about the first counter-example—that perhaps the Pope cannot after all be properly described as 'speaking English' (other than in a kind of scare-quotes sense) but it seems to me that his second counter-example clearly won't do either. Kenny says of the once in a lifetime lucky

1 P. T. Geach, *Mental Acts* (London, R.K.P., 1957), p. 15.

darts player that he cannot repeat the performance because he lacks the ability to hit the bull. But what can 'having the ability to hit the bull' mean in this case? Clearly for Kenny it can't just mean the physical power to hit the bull, because the darts player having hit it even once, cannot be denied to possess that. It seems that the force of Kenny's counter-example depends on construing ability as something rather more sophisticated than just physical power—something more like 'skill', 'technique' or 'know how'. But there is no indication that this is the sort of thing Geach had in mind in *Mental Acts* and surely there is a weaker, more restricted but nevertheless perfectly intelligible sense in which we can say of a lucky darts player that he 'can', or 'is able' to score a bull, even though he's managed it but once. It is in much the same sense that we can describe a non-athletic fugitive from the secret police who, victim of necessity, leaps from one rooftop to another to avoid capture, as able to perform this feat, even though he may be unlikely ever to repeat it (never again having the same motivation).

The other main doubt cast by Kenny on the possibility of formalising inferences about ability arises from his discussion of the modal axiom CMApqAMpMq. Again Kenny denies that this can be applied to ability stating that from:

(1) I can bring it about that either I am picking a red card or I am picking a black card.

we cannot validly derive:

(2) Either I can bring it about that I am picking a red card or I can bring it about that I am picking a black card.

Clearly on certain perfectly natural readings of the above sentences, there seems to be something wrong with the above inference, for whereas I am quite easily able to arrange circumstances so that whichever card I pick next will be either a red or a black (all I need is an ordinary pack of playing cards), it is certainly less easy for me to arrange matters so that either I am able to select a black card or I am able to select a red card. My arranging things so that whatever card I pick next will be red or black does not seem to imply that either I'm able to pick a black or I'm able to pick a red, as it were, at will. Does this observation then, reveal a fundamental anomalousness about the logical behaviour of ability statements? I think not. As we have observed

already, 'can bring about' is normally ambiguous with respect to a number of different senses of 'can' and particularly as between 'am able to' and 'know how to'. It appears that in (1) Kenny is reading 'can bring about' in the sense of 'am able to' and in (2) in the sense of 'know how to'. If we restrict the sense of 'can bring about' to either one or the other of these two meanings in Kenny's inference then we do not seem to run into trouble. For example from:

(3) I am able to pick a red card or to pick a black card.

we can infer:

(4) Either I am able to pick a red card or I am able to pick a black card.

It is clear I think that if I am able to arrange circumstances so that the next card I select will be either a red one or a black one, then I have also thereby arranged matters so that either I'm able to pick out a black card or I'm able to pick out a red one. It affects the validity of the inference not at all that I may not or cannot know in advance which of the statements contained in the inferred disjunction turns out to be true. One of them has to be true and that is quite sufficient for the truth of the disjunction as a whole. Now again from:

(5) I know how to pick a red card or to pick a black card

it is at least arguable that we can infer:

(6) Either I know how to pick a red card or I know how to pick a black card.

—though certainly this isn't quite so clear. Still, again on a perfectly natural reading of these two sentences, the inference seems valid enough. If a conjuror claimed to know how to pick a red card or to pick a black card, we would surely be justified in construing his statement as a claim to know how to produce on request, a card of whichever colour was required. All that we have observed so far then, suggests that a fallacy of equivocation vitiates Kenny's discussion of applications to ability of the modal axiom of the distribution of possibility over disjunction,—two quite different senses of 'can' have been confused.

However from the outset there is something more fundamentally wrong with Kenny's discussion, for although (2) is a

legitimate interpretation of the consequent of the modal axiom of disjunctive distribution (i.e. AMpMq), it appears that (1) is not a proper instance of the antecedent (MApq). Still using Kenny's example, the correct interpretation of the antecedent is surely:

(7) I can either bring it about that I am picking a red card or bring it about that I am picking a black card.

—and from this we *can* infer (2). Kenny mistakenly interprets the modal prefix 'M' as 'can bring it about that', whereas it should strictly be read as standing for just, and no more than, the expression 'can'. For 'I can bring it about that p' is an instance of double and not just single modality, and recognition of the occurrence of nested modalities in statements about knowing how and ability is, as I hope to show, crucially important for a correct understanding of the logic of these two notions. I shall say no more in this paper about the feasibility or otherwise of actually systematising logics of ability and practical knowledge beyond remarking that Kenny has not shown such enterprises to be beyond hope. I do hope however that I have already said enough to indicate a real necessity to be clear about the logical differences between ability and knowing how statements and I turn now to a more detailed consideration of these.

2. *Sentences about knowing how and ability*

I am concerned in this paper then, with two relational expressions, '—is able to . . .' and '—knows how to . . .' (and with the logical differences between them). We may say first of all of both these expressions that in general they relate names or definite descriptions of one sort or another to action or activity descriptions. The names and definite descriptions refer usually to particular human agents or to other kinds of agencies (e.g. institutions or organisations) and the descriptions to which these designations get related may either be descriptions of particular acts or of general activities. So the expressions under consideration might be completed in any of the following ways:

Paderewski knows how to play the Moonlight Sonata.
The F.B.I. knows how to fight crime.
The two Greeks were able to overcome the three Turks.
Mohammed Ali is able to defeat any opponent.

Let us schematise sentences containing the expressions 'know how' and 'is able', replacing all occurrences of names or definite descriptions by the higher case letter 'A', and using the sign 'ϕ' to keep place for all occurrences of action or activity descriptions. In this way we may represent the logical form of sentences such as those above, as follows:

A is able to ϕ
A knows how to ϕ

Now there does seem to be at least a superficial similarity between these two constructions and constructions of another sort which have been called by many philosophers following Russell, the 'propositional attitudes'—that is, sentences of the form:

A believes that p.
A perceives p.
A remembers p.

Clearly, however, know how and ability contexts do not report attitudes (a more appropriate word for them might be 'aptitudes') and it is not at all obvious either, that they contain propositions. Nevertheless they do seem to share with the standard propositional attitudes a general feature which might incline us to refer to examples of either sort of context as 'propositions with two verbs' (i.e. propositions negatable in at least two ways). Moreover the two expressions we are considering do seem to have been regarded by recent writers as modal prefixes (e.g. Kenny calls ability contexts—'dynamic modalities'). But are knowing how and ability statements, like the epistemic and doxastic constructions to which they have been compared, actually propositions with two verbs? Sentences about knowing how and being able contain besides the expressions for these concepts, names, and most troublesome of all, action descriptions. What is the logical status of descriptions of action? Two principal approaches to the logic of action descriptions are discernible in the recent philosophical literature on action. One well known approach is due to Davidson who has suggested that action descriptions be treated as a kind of event description.[1] Event descriptions are to be

1 D. Davidson, 'The Logical Form of Action Sentences' in *The Logic of Decision and Action*, ed. N. Rescher (Pittsburgh: University of Pittsburgh Press, 1966), pp. 81–95.

treated in turn as designations or quasi-names of particular individual events. The advantage of this approach is that it allows us to treat actions as individuals of a sort for quantification purposes and it also enables us to handle adverbial expressions within first order predicate calculus. But the disadvantages of this approach are also considerable. Clearly in the first place such an approach requires us to recognise and admit to our ontology a certain class of individuals—events—for which the principles of identity and individuation remain notoriously unclear. It has been shown that a failure to specify adequately the conditions under which two supposed event descriptions can be said to refer to the same event can have disastrous consequences for any attempt to formalise inferences about action carried out in the Davidson manner.[1] Another disadvantage of this approach is that it obliterates the distinction between actions and events, actions being regarded as just another sort of event.

The other main influential approach to the analysis of act-descriptions is apparent in the writings of several recent philosophers of action, among whom Chisholm, Von Wright and Kenny may be mentioned[2] (from now on, I shall refer to this approach as the 'C V K view'). This approach avoids taking event talk as irreducible, by analysing events as relations between states of affairs, and actions as relations between agents and states of affairs. States of affairs are themselves construed as ordinary individuals (persons, material objects etc.) in ordinary relations. Thus event-descriptions are constructed from signs for elementary propositions by means of a binary connective, a sentence forming operator on sentences, such as 'causes' or 'and next' (the latter is a staple of Von Wright's T-calculus of action). Action-descriptions are similarly constructed by joining a name or a definite description of an agent to a simple or complex propositional sign by means of some such expression as 'brings it about that' or 'makes happen'. Among the numerous advantages of this approach is that the difference between event and action, transeunt and immanent causation is clearly apparent in the grammatical difference between:

1 M. D. Cohen, 'The Same Action', *Proceedings of the Aristotelian Society*, vol. lxx, 1969–70.

2 See e.g. A. Kenny, *Action, Emotion and Will* (London, R.K.P., 1963), R. Chisholm, 'The Descriptive Element in the Concept of Action', *Journal of Philosophy*, lxi, 1964, pp. 613–625, and G. H. Von Wright, *Norm and Action* (London, R.K.P. 1963).

A brings about p.

and

p and next q.

For many philosophers, the main disadvantage of this approach lies in the fact that the sentence forming operators thus invoked are clearly not truth-functional and the contexts in which they operate are non-extensional (e.g. even if p, q and 'p and next q' are all true, we still cannot switch the positions of p and q in the complex statement without falsifying it). Furthermore the adoption of the C V K line undoubtedly complicates the logic of the two contexts we are considering, for in each case a further modality emerges to add to those we have already noted. On the 'bring about' analysis of action descriptions our ability and knowing how contexts now expand as follows:

A is able to bring it about that p.
A knows how to bring it about that p.

It transpires on this analysis that the logical form suggested earlier, of sentences about knowing how and ability, was only the apparent form, for such sentences are really instances of one modal construction buried within another. Ability and know how are thus seen to be concepts of third level (like e.g. the 'know' of self-knowledge, as it occurs in sentences like 'A knows that he knows that p'). We may recall that a failure to notice this feature of ability sentences, led Kenny into difficulties over the interpretation of the modal axiom of distribution. At this point, clearly a choice must be made between the two ways of handling action descriptions just described and despite the logical complications introduced by the bring about analysis, I shall nevertheless adopt it. Davidson's way out must inevitably lead to a blurring of precisely those logical differences between knowing how and ability contexts I am interested in marking, for in order that these become clear, it is necessary not only that the distinction between action and event be preserved, but also that different concepts of agency or bringing about come to be recognised. It is clear that the motive behind Davidson's treatment of action descriptions as designations of events is a desire to eliminate all traces of intensionality from sentences containing such descriptions (the same motive that has led him to deny that the role of the expression 'which caused it to be the case that', in singular causal

reports is that of a connective of sentences). But it must also be clear that treating action descriptions as designations of events will not automatically render knowing how and ability contexts extensional anyway (or at least, not both of them, as we shall see) for such contexts still contain the connectives 'knows how to' and 'is able to', the truth-functionality of which is more than suspect. Davidson himself readily admits that beyond the domain of extensionality, there is a realm where intensionality 'reigns' (where language is the richer for containing expressions like 'the fact that') but he regards sentences in which the component clauses are linked by causal and temporal connectives as 'untenable middle ground'.[1] This is because such sentences appear extensional in some ways (in respect of substitution of singular terms) but intensional in others (respecting the non-truth-functional occurrence of component clauses or contained sentences). But if this middle ground is indeed 'untenable', why should this tempt us to annex it to the realm of extensionality? Davidson invites us to regard language about agency and causality as extensional, at the high price of treating individual events on a level with ordinary individuals and classes as proper objects of discourse for the logic of quantifiers but why shouldn't we rather regard such language as exhibiting another, but weaker, kind of intensionality? If contexts irredeemably intensional have to be admitted, then little would seem to be lost, and much is surely gained (e.g. the preservation of undeniably important distinctions, like that between immanent and transeunt causation) by emphasising the resemblances borne to such contexts by sentences about cause and agency. In the next section, therefore, we shall continue to regard action descriptions as of the form '—brought about that p'.

3. *The intensionality of knowing how and ability*

In what then does the non-extensionality of the two contexts under discussion consist? Clearly to begin with, in so far as both our expanded ability and knowing how contexts contain 'bring about' attached to a propositional sign, they will both be non-extensional to the extent that replacement of one true proposition by another in either context may well be illegitimate. For example from:

1 D. Davidson, 'Causal Relations', *Journal of Philosophy*, lxiv (1967), pp. 691–703.

(8) The Greek general Miltiades was able to bring about that the Persians were defeated at Marathon in 490 B.C.

we cannot validly derive by replacing one true statement by another in the above sentence:

(9) The Greek general Miltiades was able to bring about that World War I was concluded at the Treaty of Versailles in 1919.

The same applies to knowing how contexts. However, the first feature to be noted about the failure of inferences of this kind is that they are due entirely to the way the descriptions of the two different states of affairs said to be effects of the agency of Miltiades, stand in relation to the expression 'bring about', not to the way in which they occur in relation to 'was able'. To put this more simply, although it is not true that Miltiades brought about any true state of affairs we care to mention, it is true that whatever he brought about was something that he was able to bring about (confirming the Geach reading of the modal law CpMp, for statements of ability). But, and I shall elaborate this point below, this does not seem to be true of knowing how, for we cannot get from:

(10) Miltiades brought about the defeat of the Persians at Marathon in 490 B.C.

to:

(11) Miltiades knew how to bring about the defeat of the Persians at Marathon in 490 B.C.

—at least not without further information. This is because (11) suggests that Miltiades defeat of the Persians was more than just a matter of mere chance or luck, or what might be called 'minimal' bringing about, and was more definitely due rather to some kind of plan, strategy or design on the part of the Greek commander. It is worth noting here that according to a dispositional analysis of ability or knowing how, it is a matter of indifference whether we describe Miltiades achievement by (8), (10) or (11) for no clear account of the difference between these statements can be given on that analysis (and indeed on that analysis expressions like 'knew how' and 'was able' would appear to be redundant, for the same reason that, according to the view behind the analysis, we add nothing to a statement that the glass broke, by saying that

it was brittle when it broke). I shall return presently to considerations of this sort.

The main point that has emerged from our discussion of past tense reports of knowing how and being able, is that in the case of ability statements at least, their non-extensionality is due to the relation between 'bring about' and any sign to which this prefix may be attached. Let us for a moment, attend more closely to the sentence prefix. Geach[1] has characterised 'bring about' contexts as 'half-way extensional', because although they do not permit the interchange of embedded true propositions, salva veritate, they are yet untainted, unlike other modal contexts (e.g. those of necessity, knowledge and belief) with what Quine[2] has called 'referential opacity'. In other words any singular term occurring in a proposition to which 'A brings about' is attached may be replaced by an expression that is either synonymous or co-extensional with it, without affecting the truth value of the resulting complex action statement. If Oedipus brought about the death of the haughty stranger on the road to Thebes, and that stranger was his father, then Oedipus brought about the death of his father, whether he knew it or not. Now to a great extent this simplifies the logic of bring about sentences taken by themselves, because for one thing we don't have to trouble about the interpretation of singular terms occurring within the scope of the modal operator. We can avoid, for instance, the kind of talk about individuals in possible worlds and the like, which has been invoked in connection with sentences about knowledge and necessity. In general all we need to worry about with respect to bring about contexts are the truth values of the embedded propositions and the obvious requirement of a criterion for the interchangeability of these propositions (though that is quite enough to be going on with). However the main concern of this paper is with sentences about knowing how and ability and as we have seen the standard grammatical objects of such sentences are action descriptions which we have explicated as bring about sentences. But although we have considered certain past tense exceptions, the rule for knowing how and ability contexts is that generally speaking they contain action descriptions entirely innocent of truth-value. In this respect statements about knowing

1 P. T. Geach, 'Teleological Explanation' in *Explanation* ed. S. Körner (Oxford, Blackwell, 1975).

2 W. V. O. Quine, 'Reference and Modality' in *From a Logical Point of View* (Harvard, 1953, p. 142).

how and ability resemble sentences about possibilities. There appears to be a certain formal analogy between statements like 'A is able to ϕ (at time t)' and statements of the form 'Possibly A will ϕ (at time t)' in so far as both sorts of construction appear to be addressed counterfactually to certain possible circumstances. Whereas the second sort of sentence seems to speak of possible states of affairs, the first kind appears to talk of possible actions. All the same, the non-extensionality of standard modal contexts consists in their referential opacity on the one hand, and in the fact that they do not allow the indiscriminate interchange salva veritate, of true sentences occurring within the scope of the modal operator, on the other. Now by these criteria, sentences about ability do not seem to be non-extensional except in so far as they contain bring about constructions which are themselves only 'half-way extensional'. If we can discover satisfactory criteria for the identity or coextensionality of action descriptions, then we need have no further fears about replacing one description of an action by another in ability contexts. This clearly follows from the Geach point about ability—that whatever a man does, he thereby can do, and whether he knows it or not. If 'ϕ' and 'ψ' are but alternative descriptions of the same action, then if A is able to ϕ, he's also able to ψ. Thus the analogy between ability and possibility ultimately breaks down, and it does so I think because of a fundamental logical difference between the standard objects of sentences about ability and possibility.

We have seen however that in order to render sentences about ability extensional we require a way of telling when different action descriptions are but alternative ways of referring to the same action. Do we have such a satisfactory criterion for the identity or coextensionality of action-descriptions? An approach to this problem which has won much support is particularly associated with the names of Anscombe[1] and Davidson.[2] The view taken by both of these writers is often simply referred to as 'the identity thesis' and roughly speaking the gist of it is that two different descriptions can be considered to refer to the same action, if they can both be offered as alternative descriptions of one and the same piece of bringing about or event of agent-causation. Thus 'A brings it about that p' and 'A

1 G. E. M. Anscombe, *Intention* (Oxford, Blackwell, 1957).
2 D. Davidson, 'Actions, Reasons and Causes' *Journal of Philosophy*, lx (1963), pp. 685–700.

brings it about that q' may well describe the same action, even though the state of affairs mentioned in p is quite different from that mentioned in q, if by bringing about p, the agent also brings about q, at one stroke as it were. Miss Anscombe concludes from a now famous example[1] offered in the course of a discussion of this topic in her work *Intention*, that it is but one act that is variously described as 'pumping water', 'replenishing the water supply', 'poisoning the inhabitants of the house' etc. Now all of this seems to fit in nicely with our observations about the logic of ability sentences and it could be regarded as a vindication of the identity thesis that it enables us to eliminate all traces of non-extensionality from such sentences. For if A is able to replenish the water supply and this action can also be described as 'poisoning the inhabitants of the house' (that is to say these two act-descriptions are coextensional according to the Anscombe–Davidson criteria), then it seems legitimate to infer that A is also able to poison the inhabitants of the house. So the identity thesis provides us with an effective way of restricting substitution with a minimum of trouble in ability contexts. But what of knowing how contexts—can the same means be used to a similar end, with respect to these? I shall try to test this, by means of an example rather more fanciful but also more appropriate to knowing how contexts than the one just cited from Miss Anscombe. Suppose a famous dancer was to perform before an audience, an item from his repertoire to which he has himself given the following title:

(12) A performance of Improvisation No. 15

To the astonishment of a member of his audience who just happens to be an expert on communications, the movements of the dancer turn out to resemble an accurate (movement perfect) semaphore version of Gray's 'Elegy', though the dancer is quite unaware of this fact. We may describe what is seen by the audience member as follows:

(13) A semaphore recital of Gray's 'Elegy'.

Now clearly we can use the identity thesis as a warrant for regarding (12) and (13) as alternative descriptions of the same action (or set of actions) and given what we have so far observed about the logic of ability we can also offer either (12) or (13) as

1 G. E. M. Anscombe, ibid. pp. 45–46.

a description of what the dancer was able to do. But equally clearly, although we can describe the dancer as knowing how to bring about (12) we cannot reasonably suppose that he also knows how to bring about (13). Even though (12) and (13) are, according to the identity thesis, but different characterisations of the same action, we cannot safely switch these characterisations in knowing how contexts. So it appears that sentences about knowing how, unlike those about ability, are truly non-extensional. Or are they? Oddly enough, some substitutions in knowing how contexts seem to be safe enough. For example the same magician's performance might be described as:

(14) A display of conjuring tricks

or alternatively as:

(15) A performance of prestidigitation.

Now it seems clear enough that if the magician knows how to bring about (14), then he also knows how to bring about (15). This remains the case even though the descriptions (14) and (15) are not safely interchangeable in the epistemic analogues of knowing how contexts, for a magician might know that 'conjuring is entertaining' without thereby knowing that 'prestidigitation is entertaining' (for he might be unaware that 'prestidigitation' means much the same thing as 'conjuring'). It appears then, somewhat paradoxically, that whereas knowing how contexts are non-extensional for some substitutions of alternative descriptions of a given action, they are not for others. What could be the reason for this anomaly?

Our paradox has I think, a quite simple solution. What are identified on the identity thesis are descriptions of actions construed in a rather simple way, and what get individuated by the same criteria, are as we have already noted, no more than instances of agent-causation. On the identity view, (12) and (13) are coextensional in so far as they both pick out an action construed in this weak sense as a bit of bringing about; but they are not coextensional if we choose to understand actions in a more sophisticated way, as for example, bits of behaviour characterised by their intentionality or purposefulness. The advantage of the 'bring about' analysis of action-descriptions over Davidson's treatment of these is that the distinction between agency and mere happening is preserved, but the weakness of this approach

lies in the fact that it blurs further important distinctions between different kinds of actions, e.g. the distinction between simple agent-causation and intentional action. The substitution failures in sentences about knowing how are indeed entirely due to the blurring of this last distinction, for although descriptions of actions understood merely as instances of bringing about or agent-causation, are legitimate objects of ability contexts, they are not the proper objects of knowing how contexts. It appears to be the case that knowing how statements require as their objects, descriptions of actions construed in a much more sophisticated way, as, in fact, intentional actions. The reason why we can safely switch (14) and (15) in sentences about knowing how is that both these descriptions refer to the same activity, but 'same' not in the sense of being one self-identical pattern of physical movements; rather 'same', in the sense of having one point or purpose. It might be suggested at this point that the truth-preserving feature of (14) and (15) is their synonymy. This wouldn't seem to be a very helpful suggestion however. In the first place the supposition that (14) and (15) are synonymous doesn't alter the fact that these descriptions still cannot be interchanged in standard epistemic contexts, and in the second place it is far from clear what adequate criteria of synonomy for action-descriptions (or anything else for that matter) would look like.

If what I have said so far is correct, then, reports of knowing how differ from those of ability in taking members of a different class of action descriptions for their objects. The descriptions in question are those of intentional actions rather than mere instances of agent-causation. It would seem to follow from this, therefore, that a satisfactory account of the nature of intentional action is a necessary prerequisite of a fully-fledged theory of knowing how as an important expression and aspect of human rationality. Having, I hope, indicated something of interest about the logic of knowing how sentences, I would now be inclined to proceed to say something about the truth conditions of correct reports of the form 'A knows how to ϕ', but this must be left for another occasion.

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