THE INSTRUMENTAL STRUCTURE OF ACTIONS

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According to current orthodoxy in the philosophy of action, intentional actions consist in intrinsically mindless bodily movements that stand in causal relations to appropriate mental states. This paper challenges this approach to intentional action, by arguing that there are not enough appropriate mental states around to 'animate' all of the bodily movements we intuitively count as intentional actions. In the alternative picture I suggest, the bodily movements that constitute our intentional actions are themselves to be thought of as cognitive events, embodying our grasp of ways of acting.

I. INTRODUCTION

A complete account of what happens around an agent for any length of time will mention a multitude of processes or events, only a few of which we would, intuitively, classify as his/her intentional actions.[1] A central problem for the philosophy of action has been to explain what it is that sets those processes and events apart from the rest.

What sort of explanation is at issue here? Consider Wittgenstein's famous question: 'What is left over if I subtract the fact that my arm goes up from the fact that I raise my arm?' (1958, sec. 621). The phrasing of Wittgenstein's question suggests that what sets actions apart from mere bodily movements is something *added to* such movements—so that it can be 'left over' once the

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[1] I use the terms 'event' and 'process' loosely here, to cover the broad category of *occurrents*, or things that happen. Occurrents in this sense are concrete spatio-temporal entities, distinct from *substances* in that they are extended in *time*. I will simply assume that actions are occurrents in this sense. It has, however, been noted—recently by Thompson (2008), Hornsby (2012, 2013), and Steward (2012, 2013)—that the philosophy of action would benefit from further distinctions within this broad category of occurrents. These issues will take a backseat for most of this paper, except for the end of Section III.

bodily movement has been subtracted.[2] Intentional action is just the sum of
a mere bodily movement plus something else. This is the reductive approach
that, following David Velleman (2009), I will call the 'standard story' of action.
In this story, what turns a mere bodily movement into an intentional action is
its standing in appropriate causal relations to suitable mental states or events.[3]

I believe that the standard story of action fundamentally mischaracterizes
intentional action. This is because it fundamentally mischaracterizes the place
of the mind in intentional action. In the picture that underlies the standard
story, the bodily events that are the public manifestations of agency are, in
themselves, *mindless*. Although caused and directed by appropriate mental
states, there is nothing about their internal constitution that marks them out
as expressions of intelligence. To put it somewhat provocatively (in light of the
generally materialist commitments of its proponents), the standard story seems
to involve a residual dualism between the mind and the body: intrinsically
mindless bodily events count as intentional actions in virtue of being 'animated'
from without.

As I argue in Section II, we can see that this picture mischaracterizes
action by noticing that the standard story of action is incapable of explaining
why certain intentional actions should count as such. Although the problem
cases I will discuss are not new, I do not think that their importance has
been adequately appreciated. They concern what have been called 'subsidiary
actions' (Searle 1983: 84; Adams & Mele 1989: 519; Mele 1992b: 356; Ruben
2003: 126 ff.), or actions that are performed only for the sake of larger actions—
for instance, the individual steps Raji takes as she walks from her desk to the
kitchen in order to get a glass of water. The problem such cases pose for the
standard story of action is that it is not at all clear that we can find appropriate
mental states to animate all of them. After considering various attempts by the
standard story to bring them into the fold, I conclude that the problem is real:
subsidiary actions show that the standard story of action gets the extension of
the predicate 'intentional action' wrong.

In Section III, I explore an alternative approach. My starting point is the
thought that temporally extended actions are not mere aggregates of smaller

[2] Did Wittgenstein think that this additive picture is correct, or was he merely trying to identify
a source of philosophical confusion? Context suggests that the latter may be the case. For present
purposes, we do not need to settle this exegetical issue. What we are interested in is only the role
the picture that Wittgenstein sketches has played in recent philosophy of action.
[3] Notice that Velleman applies the term 'standard story of action' specifically to theories that
identify the relevant mental states with pairs of desires and beliefs. I am using the term more
broadly, to cover theories (like Velleman's own) that endorse the reductive program but think
that simple belief–desire pairs are not the right mental states to figure as the cause of actions.
The reductive program (at least in its contemporary incarnation) was inaugurated by Donald
Davidson (1980a), although he subsequently came to question it, in the face of the problem
of deviant causal chains (Davidson 1980b). Influential works in this tradition include Goldman
(1976), Searle (1983), Brand (1984), Bishop (1989), Mele (1992), and Enç (2006).

events: they have a determinate internal structure. Temporally extended actions are typically composed of *further actions*, which stand in *instrumental relations* to each other and the larger actions they compose. An instance of, say, omelette-making is a sequence of smaller actions—breaking the eggs, melting the butter—which are all performed with the end of making an omelette in view. The same goes even for actions which most people accomplish without deliberation or planning, like tying one's shoelaces. According to the view I will sketch in Section III, we cannot capture the bodily events that are our actions except in terms of such instrumental structure.[4] If this is correct, however, then it follows that actions should not be conceived as composed of intrinsically mindless bodily movements, directed from the outside by suitable mental states.

Before moving on, a clarification is in order. Although the reductive theories of action I will be criticizing are causal theories, and although causal theories are often advanced with reductive aims in mind, it is worth noting that the two projects are conceptually distinct. It is possible to hold that intentional action involves bodily movement caused by suitable mental states while denying that this gives grounds for reduction (Hornsby 2004: 179; Setiya 2011: 136, 137). This might be because one does not take the relevant bodily movements to be *mere* bodily movements, in the relevant sense—perhaps one takes them, instead, to be exercises of distinctive capacities to act [as in Alvarez & Hyman (1998) and Coope (2007)]. Nothing I say in this paper is meant to challenge such views; indeed, my positive proposal might be read as an attempt to explain in more detail what it is for a bodily movement to be an exercise of a capacity to act. My disagreement is with a certain species of reductionism in the philosophy of action, rather than with the general idea that causation by mental states might play a role in the theory of action.

II. A PROBLEM FOR THE STANDARD STORY OF ACTION

II.1 Subsidiary actions

We typically do things by means of doing other things. Raji gets herself a glass of water; she does this by first getting up from her chair, turning around to orient herself toward the hallway that leads to the kitchen, walking down the hallway, taking a glass from the shelf, and filling it up with water from the tap. All of the items on that list are, on the most natural understanding of the story, themselves intentional actions of Raji's. Moreover, it seems very plausible that actions such as taking a step or getting a glass from the shelf can themselves be

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[4] This way of looking at action is strongly influenced by Michael Thompson's (2008) work, although it is developed here in a rather different way.

broken down into further intentional actions. The aim of the present section is to argue that the standard story of action has trouble accounting for the status of such subsidiary actions.

Let us start by making the standard story of action a bit more precise. Most recent theorists in this tradition give a central role to *intentions*, conceived of as *sui generis* mental states (Searle 1983; Brand 1984; Adams & Mele 1989; Bishop 1989; Mele 1992a; Enç 2006). Although different theorists differ over the details, they all agree that intentions are executive states, in the sense that their functional role is to *initiate* and *sustain* the events that constitute the agent's action. The central claim of the standard story of action, then, is as follows:

> An event is an intentional action of an agent's if and only if it is, in the right way, initiated and sustained by an appropriate intention—perhaps in combination with other relevant mental states—of hers.

Much ink has been spilled over attempts to specify the 'right way' in formulations such as the above. For present purposes, I will set this issue to one side. The question I want to focus on is whether we can always find appropriate mental states to stand at the ends of such chains.[5] I will concentrate on relatively simple physical actions, such as Raji's getting up from her desk and walking to the kitchen to get a glass of water.

Let us consider, then, what intentions might be in play in Raji's quest for water. From the point of view of common sense psychology, the answer would seem to be 'not many'. It seems entirely possible to tell the story as follows: Raji decides (forms the intention) to get a glass of water, and then without further ado—without further conscious planning or forming of intentions—she gets up, walks to the kitchen, and gets a glass of water.

Suppose we accept that the only intention in play here is the overarching intention to get a glass of water. Nevertheless, again from the point of view of common sense psychology, it is clear that Raji only succeeds in getting a glass of water in virtue of performing a series of further intentional actions— so-called *subsidiary actions*. Consider now one of these subsidiary actions of Raji's—consider, for instance, *Step*, a particular step that Raji takes along the way. This looks like a clear-cut case of an intentional action on Raji's part. It is an individual event, which takes place in a relatively well defined region of space and time. Moreover, Step passes intuitive tests of intentionality. It is subject to Anscombe's (1957) question 'why?', which asks for an agent's reasons: although Raji spends no time thinking about each individual step that she takes, we legitimately expect that she will have answers to questions of the form 'why did you just take that step?' (answer: 'because I'm walking to

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[5] Ruben (2003: 126 ff.) raises similar concerns.

the kitchen'). Thus, Step and its peers are all intentional actions of Raji's. But what, on the standard story, makes them such?

The standard story needs to find a relevant intention to initiate and guide the movements of Raji's body that constitute Step. Given our assumption, the only intention relevant here is Raji's intention to get a glass of water. But, prima facie at least, it would seem that none of the individual steps that Raji takes while walking to the kitchen figures in the content of that intention. So why would being initiated and sustained by *that* intention suffice to render Step an intentional action of Raji's?

Notice, in particular, that there are all sorts of things that might be initiated and sustained by that intention. Suppose that the mere thought of getting a glass of water causes Raji's heart to beat faster (perhaps, anticipating the oncoming burst of physical activity, her body prepares by increasing the blood flow). Raji's intention then is causally responsible for a bodily reaction that is not a plausible candidate for being an intentional action of hers. Similarly, changing the example a bit, suppose that Raji's trip to the kitchen was not for the purpose of getting a glass of water, but rather for the purpose of getting a piece of chocolate cake. And suppose that, at the mere thought of chocolate cake, Raji begins salivating. Once again, Raji's intention is causally responsible for a bodily reaction that is not an intentional action of hers. The sufficiency claim, therefore, appears to be false.

This, then, is the problem subsidiary actions pose for the standard story of action. In the standard story, intrinsically mindless bodily movements are turned into actions by distinct mental states that animate them, but, intuitively, there are not enough such mental states around to animate all those of our bodily movements we are inclined to count as intentional actions.

There are several ways in which a proponent of the standard story might try to respond to the problem. I consider them in turn.

II.2 Plans and basic actions

To begin with, a proponent of the standard story might complain that the problem only arises because I have radically underspecified the content of Raji's intention. According to many authors, the content of an intention specifies not just a *goal*, but also a *plan* for achieving it (Bratman 1987; Adams & Mele 1989; Mele 1992a; Harman 1999; Enç 2006). The suggestion, then, might be that it is only those bodily movements that are specified by the plan-content of an agent's intention that count as her intentional actions. Given that increased heart rate and salivation do not belong to any plausible plan of Raji's, this could explain why they do not count as intentional actions on her part.

I am happy to accept that intentions often incorporate plans as well as final goals. However, I do not think that the folk notion of a plan can do what the

standard story needs it to do at this point. To begin with, we should not lose sight of the fact that, on a common sense conception of plans, they are far from ubiquitous. We plan only when what we intend to do is difficult or unfamiliar, or requires complex coordination. From the point of view of common sense, it would certainly be odd to describe Raji as having a *plan* for getting a glass of water from the kitchen—much less one that prescribes *each individual step* she has to take in order to get there. Intuitively, all we need to credit Raji with in order to explain her actions is *knowing her way around her own house*, together with the goal of getting a glass of water. Know-how and intentions for ends seem to exhaust the psychological states we need to attribute to agents in many circumstances.[6]

But there is no need to rest much weight on observations about the common sense notions of plans and planning. We can get the worry about subsidiary acts going by noting that even proponents of the standard story of action allow that the plan-content of intentions is *coarse grained*. For example, Enç (2006: 180) writes:

> A *decision* involves (1) a goal (the purpose with which the action is to be launched), and (2) a chosen *plan* that . . . strings together means to intermediate ends until the string connects some basic act that is in the basic act repertoire of the agent with the goal . . .

Thus, plans are built up out of discrete building blocks, the *basic actions* the agent has in her repertoire. Moreover, and crucially, as Enç (2006: 49–52) makes clear, basic actions can be quite complex learned behaviours, such as tying one's shoelaces or whisking egg whites.

Following Enç (and common sense) on this point requires drawing a distinction between *basic* actions and what we may call *atomic* ones. In Enç's view, basic actions are actions that an agent can perform without planning or deliberation; this is what qualifies them as the building blocks of plans. It does not, however, follow from this that basic actions lack instrumental structure: the fact that you do not have to deliberate about how to tie your shoelaces, for example, does not entail that the complex movements you make with your fingers as you are tying your shoelaces are not themselves actions that you perform intentionally, *in order to* tie your shoelaces. Doing one thing in order to do another does not always require deliberation or planning.

It is important to be clear that this is not the only way in which the term 'basic action' has been used in the literature. Consider, for example, a definition like the following:

> When one is doing Φ as a basic action, one is not doing it by intentionally doing other things (Setiya 2012: 287; see also Mele 1992a: 220).

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[6] Could the notion of know-how, rather than that of a plan, help the standard story? I consider this suggestion in Section II.4.

In my terms, such definitions capture the quite different notion of an *atomic* action, or an action that lacks instrumental structure (examples might include very simple physical actions, such as intentionally blinking or tapping your finger on your desk). But basic actions in Enç's sense need not be atomic: as we saw, the fact that you did not have to deliberate over how to Φ does not entail that you did not intentionally Ψ in order to Φ.

Now, I do not know if Enç would be willing to include things like getting a glass of water from the kitchen in Raji's repertoire of basic actions. But he would certainly include *taking a single step* in Raji's basic action repertoire, and this is enough to get the worry about subsidiary acts going.

Taking a single step is itself a complex action, composed of many smaller movements. Moreover, I contend that such movements—placing a foot in front of the other, shifting her weight forward as she lifts her other foot and swings it forward, etc.—are also *intentional actions* on Raji's part. They are, for example, subject to Anscombe's question 'Why?' that asks for the agent's reasons. Of course, Raji need not be able to describe the *specific trajectories* her body and limbs move along while taking a step, and neither will she be able to provide reasons for choosing just these trajectories rather than others. She will, however, be able to capture her movements in a rough description—perhaps just 'moving my body the way I do when walking'. And she certainly has, and can give, a reason for doing *that*: she is walking to the kitchen. The same point applies to Anscombe's other criterion for intentional actions, namely, that they must be available to the agent in non-observational knowledge: Raji may not be able to non-observationally describe the precise trajectories of her limbs while walking, but she certainly knows, non-observationally, that *she is moving her body in the way required for walking*. Thus, we have no reason to doubt that those movements are intentional actions on her part.

But if we allow for such sub-basic intentional actions, then the problem of subsidiary actions is back. By hypothesis, nothing below the level of basic actions is explicitly specified in the plan-content of the agent's intentions. So in virtue of what, according to the standard story, do sub-basic actions count as intentional actions? More specifically, how can the standard story distinguish between such sub-basic intentional actions and other bodily effects of the agent's intention such as increased heart rate or salivation?

It will not help here to allow that the plan-content of Raji's intention might refer to her sub-basic in the same bland way I exploited above, for instance under the description 'moving my body in the way required for walking'. For *which* bodily events are supposed to be picked out by this description? Why is, e.g., increased heart rate not within its scope? This is precisely the question that appeal to intentions was supposed to answer. Including such broad descriptions in the content of intentions, therefore, cannot help the standard story.

II.3 Motor schemas and intentions in action

The standard story therefore needs mental states whose contents are much more specific than those recognized by common sense psychology. Partly in recognition of this point, proponents of the standard story of action frequently appeal to more theoretical states, such as those of *intentions in action* and *motor schemas* (Searle 1983; Brand 1984; Mele 1992a; Enç 2006; Pacherie 2008; Adams 2010; Clarke 2010). Such states are supposed to represent, in a hierarchical way, the various movements that an agent must make to accomplish a particular motor action—walking to the kitchen, as it might be (for a review of the cognitive neuroscience behind this idea, see Jeannerod 1997).[7] And it might be thought that such intentions in action or motor schemas can resolve the problem. After all, even though no plan reasonably ascribed to Raji specifies each movement that she makes in order to walk to the kitchen, those movements are presumably guided by appropriate motor schemas.

I do not think this move can help the standard story, however. Given the reductive ambitions of the standard story, there is a certain constraint we must impose upon the mental states that can be invoked in an account of intentional action: it must be possible to spell out the *nature* of such mental states without making essential reference to intentional action as such. But it is not at all clear that intentions in action or motor schemas meet this constraint.

Remember that intentions may have all sorts of physiological effects that are not actions: Raji's intention to get a glass of water from the kitchen causes an increase in her heart rate, while her intention to get a piece of chocolate cake induces increased salivation. Now, it might be objected that such physiological responses, although caused *by* intentions, do not count as actions because they are not caused *via motor schemas*. But what exactly does this mean? Our heart rate is regulated by an internal control system, which is capable of measuring our actual heart rate and comparing it to a target rate. What is it about this system that disqualifies it from counting as a motor schema? Considerations of first-person accessibility can play no role here, as motor schemas are not accessible either: you have no access to your schema for taking a step except in actually taking a step.[8] Similarly, considerations of complexity are not relevant either, since some intentional actions may involve very simple motor schemas

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[7] The phrase 'intention in action' also has a less theory-laden reading, which captures simply what the agent meant to accomplish with her actions: for example, Raji's intention in moving her legs the way she did was to get a glass of water from the kitchen. Arguably this is the way Anscombe (1957) uses the phrase. But this usage does not by itself support the standard story of action: there is no hint in this usage that such intentions in action are *distinct mental states that cause* the relevant movements. This theoretical gloss on the notion is explicit in Searle (1983). Pacherie (2008) and Adams (2010) explicitly identify intentions in action with such lower level executive representations, or motor schemas.

[8] Clarke (2010: 534) attempts to resist this claim by appealing to evidence from studies of motor imagery (i.e., imagining performing motor actions) which suggest that motor imagery implicates many of the brain areas that are implicated in overt motor action as well. Nevertheless, the claim

(I can intentionally contract my biceps). Nor can the standard story appeal to the fact that cardiac regulation is part of the autonomic nervous system, since this characterization relies precisely on the fact that it is largely outside the scope of *intentional action*—thus begging the question we wanted to answer.

Motor schemas and intentions in action are, therefore, of no use in demarcating the scope of intentional action. This should not be too surprising. These are theoretical notions, introduced precisely to aid in the study of intentional action. Why should we expect that we can understand them without presupposing the concept of an intentional action?

II.4 Know-how

I suggested earlier that in many ordinary circumstances we can explain an agent's actions without ascribing to her a plan for carrying out that action, but rather by appealing to know-how and relatively coarse-grained intentions for ends. Now, sometimes one can manifest one's knowledge how to Φ by giving a discursive account of how one Φs. Crucially, however, knowledge how to Φ can be manifested otherwise than discursively, and it can be present even in cases in which the agent has no ability to give such an account. For example, it can manifest itself in being able to Φ successfully or to instruct others in Φ-ing. Could then an appeal to know-how help the standard story address the problem of subsidiary actions?

Although proponents of the standard story often appeal to know-how, they do not directly engage with the philosophical literature on the topic. Nevertheless, I think that it will be instructive to examine their proposals through the lens provided by this literature. Recent work on know-how is characterized by two competing approaches: an *intellectualist* one, according to which know-how is (or at least is grounded upon) propositional knowledge, and an *anti-intellectualist* one, according to which it is something akin to an ability or disposition.[9] For present purposes, we do not need to choose between these alternatives: as I will argue, neither of them allows the standard story of action

that motor imagery gives us access to motor schemas seems mistaken. As Rick Grush explains: 'A bare motor [schema] is either a dynamic plan (a temporal sequence of motor commands) or a kinematic plan (a plan for limb movement specified in terms of joint angles). By contrast, motor imagery is a sequence of *faux* proprioception and kinesthesis. *The two are not the same.*' (2004: 385). The point can be brought home by considering that, as Grush (2004: 387) notes, there is evidence that motor areas are active during *visual* imagery as well. This suggests that in, say, mentally rotating a cube we draw on motor schemas for manipulating cubical objects. But obviously the content of such imagery is not constituted by motor schemas; it is, rather, constituted by the pseudo-afferent output of a system that emulates the *sensory effects* (in this case, visual) that acting in accordance with the motor schema would have.

[9] The *locus classicus* of the anti-intellectualist view is the work of Gilbert Ryle (1948). See also Fantl (2012) and Hetherington (2013). Intellectualism has also found robust support in recent years. See Stanley & Williamson (2001), Brogaard (2009, 2012), Stanley (2011), Bengson & Moffett (2012).

to solve the problem of subsidiary actions. Remember that, for any mental states invoked by the standard story of action, it must be possible to spell out their nature without making essential reference to intentional action as such. As we will see, states of know-how do not meet this constraint.

Let us begin with intellectualism. In the most familiar version of intellectualism, know-how is a species of propositional knowledge:

> *S* knows how to Φ just in case for some way *w* which is a way for her to Φ, *S* knows that *w* is a way for her to Φ. (Stanley and Williamson 2001; Brogaard 2009, 2012; Stanley 2011)

For example, for Raji to know how to get a glass of water from the kitchen is for her to know, of some way for her to get water from the kitchen, that it is a way for her to get water from the kitchen. Thus, intellectualist accounts of know-how make essential use of the notion of *ways of acting*. For such accounts to be compatible with the standard story of action, therefore, it must be possible to explain what a way of acting is without appealing to intentional actions. Can this be done?

This constraint is clearly violated by Bengson & Moffett (2012). According to Bengson and Moffett, ways of acting are *methods*, i.e., they are 'constituted by a (possibly ordered, possibly singleton) sequence of action types, the execution of which is an act' (2012: 191, 192). Obviously, the standard story of action cannot appeal to this notion of a way of acting.

Similar problems arise, though slightly less directly, for the account of ways of acting offered by Stanley and Williamson. They suggest the following (2001: 427):

> We shall take ways [of acting] to be properties of token events. Ways are the elements of the domain of quantified expressions such as 'however', as in:

> However Douglas passes the ball, it results in a basket.

Thus, to pick a different example of Stanley and Williamson's, a bicycle ride by John exemplifies a way for him to ride a bicycle. But *which* property of the ride constitutes the relevant way? Obviously, John's ride has many features that are simply irrelevant: that it was done resentfully, early on a Monday morning, for the purpose of going to work, and that it caused perspiration in John are not ways of riding in the relevant sense. Less obviously, we cannot even identify the way John rode his bicycle with the sequence of bodily movement types that were on display during his ride. Suppose that half-way through the ride John kicks at a yapping dog that threatens to bite his ankle. It is surely not the case that bodily movements of that type belong to the way of riding exemplified by John's ride. The same goes even for bodily events that were causally necessary for John to successfully ride his bicycle, such as the beating of his heart. Rather, the way of riding a bicycle exemplified in John's bicycle

ride consists of *all the things John did in order to* ride his bicycle. Apparently, what Stanley and Williamson have in mind as a way of acting is just what I have been calling the *instrumental structure* of actions: the sequence of subsidiary actions that an agent performs in performing an extended intentional action. Just like Bengson and Moffett's conception of ways of acting as methods, however, this is not a conception of ways of acting that is available to the standard story of action.

What about anti-intellectualism? On the most natural construal of anti-intellectualism, knowledge how to Φ consists in the disposition to Φ when one intends to Φ (where Φ-*ing* is specified in act-neutral terms). Moreover, if in Φ-*ing* one manifests one's knowledge how to Φ, then one Φs intentionally. But there is an immediate problem with putting this account to use in our cases. Return to Step, one of the steps that Raji takes during her walk to the kitchen. It is clear that Raji knows how to take a step. Therefore, on the anti-intellectualist view, she has a disposition to take a step if she so intends—and her step would thereby count as intentional. As we have seen, however, there is no basis for attributing to Raji a distinct intention to take each of the particular steps that she takes. Thus, the conditions for Raji to manifest her knowledge how to take a step at that particular moment are not satisfied.

How might anti-intellectualists respond to this problem? It would be natural at this point to appeal, once again, to *ways of acting*, understood (just as before) as instrumentally articulated sequences of action-types.[10] On this view, states of know-how would be individuated by reference not just to action-types, but also by reference to *ways of carrying them out*: to know how to Φ would involve beings disposed, for some way *w* for you to Φ, to implement *w* when you intend to Φ (for example, being disposed to take the appropriate sequence of steps when you intend to go to the kitchen). The problem, of course, is that by simply *defining* ways of acting as instrumentally articulated sequences of actions, we are giving up on the reductive ambitions of the standard story.

II.5 Intentional actions and side effects

One rather different way in which one might try to deal with the problem of subsidiary actions is by *qualifying* the sense in which subsidiary actions—and especially sub-basic subsidiary actions—count as intentional. Here is Enç again:

> When I tie my shoe laces, the finger movements that I produce constitute an action of mine . . . even if I do not intend to move them in the particular way I move them. The reason for including them among actions as opposed to mere behaviours . . . is simple:

[10] One might try to avoid this appeal to ways of acting by appealing to motor schemas instead. As we saw above, however, motor schemas are unlikely to help.

the things that I do in the course of executing an act plan are all *consequences of my intended objective*. (2006: 191 [emphasis added]).

There seems to be a sense of 'intentionally' in which at least some merely *foreseen or foreseeable* consequences of one's intentional actions can be ascribed to one as things that one has done intentionally (Harman 1999). Thus, if Bob runs a marathon, thereby wearing down his running shoes, there might be a sense in which we can say that Bob *intentionally* wore down his shoes. And, it might be thought, it is only in *this* sense that subsidiary actions—especially sub-basic subsidiary actions—are ever intentional.[11]

I think this line of thought should be resisted. Although in borderline cases no doubt might be found, there is an intuitively robust distinction between *actions* and their *side effects*—including ones that we might say were brought about intentionally. There is a clear sense in which Bob's wearing down of his shoes is a mere *side effect* of his running a marathon, in a way that the individual steps Raji takes on her way to the kitchen are not mere side effects of her getting a glass of water from the kitchen. The same point also applies to the movements out of which an individual step of Raji's is composed.

We can be a bit more precise here. Familiarly, not all sentences of the form '*S* Φ-*ed*' introduce *new* particular actions of *S*'s—i.e., new events. Some such sentences, rather, serve to *characterize* particular actions of *S*'s, often in terms of their consequences. In context, 'Alma woke the baby up' and 'Alma sang 'Old MacDonald Had a Farm' at the top of her lungs' might be about the same action of Alma's—namely, her loud singing. Although the former sentence supplies the information that Alma's action caused the baby to wake up, there is no reason to think of Alma as the agent of *that* event—if anyone is the agent of that event, it is the baby.[12]

The point carries over to attributions of intentionality. Even if there is a sense in which 'Bob intentionally wore down his shoes' is true, it does not follow that it is true, of the *particular events of abrasion that afflicted Bob's shoes*, that they are intentional actions of Bob's. Rather, the former claim is made true by some other particular event, which was an intentional action of Bob's, and which (foreseeably) caused the wearing down of his shoes (namely, his running the marathon). By contrast, it is true of Step that *it*—the particular event—is an intentional action. The same goes for the bodily movements out of which Step is composed. Our question is whether there is anything in the standard story of action that would allow us to mark such intuitive distinctions.

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[11] Knobe (2003) suggests that moral considerations influence *which* of the consequences of our actions we are inclined to count as intentional. This would seem to be a strike against Enç's view, as it is unlikely that our sub-basic actions ever have much independent moral significance—and yet we count them as intentional actions all the same.

[12] This, I believe, is the kernel of truth in the coarse-grained account of action individuation defended by Davidson (1980c) and Hornsby (1980). Unlike these authors, however, I do not assume that *none* of the causal consequences of our actions are also actions.

II.6 Parts of actions

One potentially tempting way to try to draw the distinction is this. Step is a genuine intentional action of Raji's because it is *part* of her larger action of getting a glass of water. By contrast, the abrasion Bob's shoes suffer is not, in the same sense, part of his running the marathon. Al Mele alludes to something like this thought, in considering the sequence of actions that compose a swim:

> The various strokes [that compose a swimmer's swim] may be intentional in virtue of their particular relation to a 'larger' intentional action (swimming a lap, say) that is done for a reason. (1992b: 356)

But Mele never gives an account of the 'particular relation' that subsidiary acts bear to the larger intentional action. In one sense, the answer is obvious: subsidiary acts are *parts* of larger actions. However, a moment's thought shows that no simple spatio-temporal or causal notion of parthood will do here. All sorts of bodily events occur in the spatio-temporal region of the swim, and indeed many of them are causally implicated in the swim as well (no swim would occur were the swimmer's heart to stop beating), but not all of them are intentional actions.[13]

Is there a different notion of parthood that would distinguish between subsidiary actions and physiological events that are not actions? I believe that there is. Subsidiary actions are *instrumental* parts of the larger actions they serve. Each of the swimmer's strokes is an action performed by her *in order to* swim, or *part of her way* of swimming. By contrast, the beating of the swimmer's heart is not an action, and is not done for the sake of anything (at least not in the relevant sense). The problem, of course, is that—as we have seen—this notion of instrumental structure or a way of acting is not available to the standard story of action.

None of our attempts to resolve the problem of subsidiary actions has been successful. It is time to consider what has gone wrong, and to look for alternatives.

III. THE INSTRUMENTAL STRUCTURE OF ACTIONS

III.1 A diagnosis

I began this paper by voicing dissatisfaction over the fact that the standard story of action presumes that intentional actions can be decomposed into a mental component and a—presumably mindless—bodily one. The problem of subsidiary actions, I believe, shows that this approach is untenable.

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[13] Ruben (2003: 141, 142) considers Mele's mereological response to the problem, and raises similar concerns.

Subsidiary actions are actions that, pre-theoretically, owe their status as intentional actions to the *instrumental structure* of the actions they are subsidiary to: they owe their status to the fact that they are *performed for the sake of* such larger actions. They are *parts of an agent's way of* performing the larger action. As we have seen, however, the standard story cannot appeal to the notion of instrumental structure. At best, it might appeal to *representations of* such structure: we might explain your Ψ-*ing* for the sake of Φ-*ing* in terms of your representing Ψ-*ing* as a means to Φ-*ing*. At the same time, however, the reductive ambitions of the standard story impose severe constraints on such mental states: they must be *constitutively independent* of intentional action, in the sense that it must be possible to specify their nature independently of the concept of intentional action as such. But as we saw, it is unlikely that the mental states (e.g., plans, intentions in action, motor schemas, states of know-how) appealed to by the standard story can meet both of these conditions at once. The result is that for a large range of actions, instrumental structure simply disappears from view.

The natural solution to this difficulty is to abandon this particular reductive goal of the standard story of action. We cannot understand the instrumental structure of actions in terms of mental states that are constitutively independent of intentional action. This, of course, does not imply that we should seek to understand the instrumental structure of actions independently of *any* mental contribution. It only suggests that we should avoid thinking of this contribution as a case of simply *adding something extra* to a brute physical movement. In what follows, I will sketch what such an approach to action might look like.

III.2 An alternative approach

Consider again Bob's wearing down of his running shoes in the course of running a marathon. Here is one natural explanation for why wearing down his shoes is not an intentional action of Bob's: there is nothing that Bob did *for the purpose of*, or *for the sake of*, or *as a means to*, wearing down his shoes. It is true that Bob did something that *resulted in* his wearing down his shoes (he ran a marathon), but he did not do that *for the purpose of* wearing down his shoes. By the same token, running a marathon was an intentional action of Bob's, as it was the culmination of a number of other things which Bob did for the sake of running a marathon (for example, taking a lot of individual strides). We generally do things *by* doing other things.[14] The standard story of action tries to explain what it is to do Φ by doing Ψ in terms of a constitutively independent mental state that represents Ψ-*ing* as a means to Φ-*ing*. My thought, by contrast, is that we should turn this picture on its head: rather than trying to analyse Φ-*ing* by Ψ-*ing* in terms of an independent representation, we should instead

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[14] This idea is central to Thompson's (2008) account of action.

acknowledge a way of grasping such instrumental relations that simply *consists in Ψ-ing for the purpose of Φ-ing*. Bob's taking a stride is not the causal outcome of a distinct mental state that represents his taking a stride as way for him to run a marathon; it *is* his grasping of a way for him to run a marathon.

How should we think of such ways of thinking that are embodied in actions? It is a familiar idea that there are distinctively practical ways of thinking. For instance, according to Stanley & Williamson (2001: 428, 429), Hannah might come to know, of a way of riding a bicycle, that it is a way for her to ride a bicycle, simply by watching John ride a bicycle in that way. Nevertheless, she may still fail to know how to ride a bicycle, because she grasps the relevant way of riding a bicycle only under a demonstrative, and not under a *practical*, mode of presentation. Grasping ways of acting under practical modes of presentation essentially involves *dispositions to act* in the relevant ways.

Now, states of know-how are *standing* states: if Hannah knows how to ride a bicycle, she has that knowledge even when not riding a bicycle, and indeed even when she is not thinking about bicycle-riding at all. But, just as standing beliefs have occurrent counterparts (occurrent judgments), standing states of know-how have occurrent counterparts as well. In a way, this is not controversial. After all, as we saw, states of know-how entail dispositions to act. Intentional actions, therefore, could be thought of as the occurrent counterparts of states of know-how. My point, now, is that just as the occurrent counterparts of standing beliefs are *themselves* cognitive events, the actions that are the occurrent counterparts of states of know-how should *also* be thought of as cognitive events. They too are cases of practically grasping a way of acting—namely the ways in which one is, in fact, acting.

Crucially, my claim is meant to be consistent with the common view that paradigmatic actions are public events, centrally involving the movement of our limbs and bodies. Consider a particular movement of Bob's legs as he is running his marathon. My claim is that *that movement itself* should be thought of as a cognitive event: it embodies Bob's grasp of a way for him to run a marathon.[15]

Notice that this suggestion, despite its reliance on the notion of grasping ways of acting, is consistent with denying that know-how is propositional knowledge. To practically grasp—either occurrently or dispositionally—a way of acting is not yet to *believe any claims* about that way of acting, which would seem to be a necessary condition for propositional knowledge. Thus, non-propositionalists about know-how could accept that in know-how we have practical grasp

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[15] McDowell (2010: 431) suggests something similar, in writing: 'our intentional interventions in the world are themselves cases of our conceptual capacities in operation'. This is McDowell's way of capturing (*via* his reading of Ancombe) the Aristotelian idea that the conclusion of a bit of practical reasoning is an action. A similar view, motivated in a rather different way, is defended by Rowlands (2011).

of ways of acting.[16] If so, they should have no problem with the idea that intentional actions occurrently embody our practical grasp of ways of acting either.

Such embodied grasp of ways of acting will not always amount to knowledge. Sometimes the way of acting grasp of which is embodied in one's actions is not adequate to the task at hand. I might be moving my fingers in a certain way in order to, say, solve a Rubik's cube, but I might be wrong about how the cube can be solved. In such a case, the movements of my fingers embody *my grasp of how* to solve the cube, but I do not *know how* to solve the cube. (The same point applies, of course, to standing states of grasping ways of acting; not all such states amount to know-how.)

Asserting that intentional actions embody our grasp of ways of acting does not imply that agents must be able to *articulate* such ways of acting, or the place of the relevant movements in them. Bob might have verbal access to no more detailed a description of his leg movements than 'what I do with my legs when running'. The point, rather, is to acknowledge that such events have their place in the 'space of reasons', or the rational order that is occupied by events and states as judgments, beliefs, intentions, and the like. They are not brute bodily movements, but rather more or less rational responses to one's environment.[17] Of course, in the case of adult human agents, we normally do expect at least some ability to articulate what one is doing. This comes out in the fact that we expect one to be able to engage, at least minimally, with Anscombe's question 'Why?'. For example, we would normally expect Bob to be able to say something along the lines of: 'I am moving my legs like *this* because I am running a marathon'. But agents other than adult humans also act intentionally, and so manifest an embodied grasp of ways of acting, while lacking even this minimal capacity for articulation.

Some might worry that there is something fundamentally confused about the idea that actions, conceived as public bodily events, embody an agent's grasp of anything. We can get to this worry in the following way. It is clear that two bodily movements which are indistinguishable in terms of their intrinsic physical qualities might nevertheless instantiate distinct action-types: an arm's rising might in one case be Raji's voting in a department meeting, while in another it is her greeting of a friend. According to the standard story of action, such differences are accounted for in terms of independent mental states that accompany the movements. From the present point of view, however, there is a difference in the movements *as such*: one movement embodies Raji's grasp

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[16] Of course, there might be strong anti-intellectualists who would deny that know-how involves any intellectual capacities at all. Such strong anti-intellectualists would, presumably, also reject my approach.

[17] Notice, incidentally, that this leaves room for a non-reductive causal theory of action, as suggested at the end of Section I: consistently with everything that has been argued in this paper, one might spell out the relevant sort of responsiveness to one's environment in causal terms.

of a way to vote, while the other her grasp of a way to greet a friend. Thus, two bodily movements which are indistinguishable in their intrinsic physical qualities might, on the present view, nevertheless differ *as bodily movements*. How can we make sense of this idea? I will end this section by suggesting a way of thinking about events and processes that might mitigate this fundamental concern about my approach.

Familiarly, there is an important class of verbs and verb-phrases, including paradigmatic action terms, for which the following principle holds:

'*S* Φ-*ed*' entails '*S* was Φ-*ing*'

For example, 'the boulder rolled to the bottom of the hill' entails 'the boulder was rolling to the bottom of the hill', 'the fruit ripened' entails 'the fruit ripening', and 'Sumitra made an omelette' entails 'Sumitra was making an omelette'. This entailment suggests the following metaphysical picture: there is a *completed event*, expressible by, e.g., 'the boulder rolled to the bottom of the hill', which results from the culmination of a *process*, expressible by 'the boulder was rolling to the bottom of the hill'.[18]

Now, although the notion of a process and its culmination is not, in general, an agential notion, it exhibits many features familiar from discussions of agency. Just as it may be true of Raji that she is walking to the kitchen even though she never makes it there, it may be true of a boulder that it is rolling to the bottom of the hill even though it never makes it there (it is vaporized by Bob's laser). Moreover, the individuation of processes exhibits the sort of selectivity that generates the problem of subsidiary actions. Consider the process of digestion. Which of the occurrences inside an organism's body should count as parts of that process? Such occurrences must in some way contribute to the organism's extracting nourishment from its food. But, just as in the case of action, the contribution cannot be spelled out simply in terms of causal relevance: otherwise the beating of the organism's heart, say, would also count as part of its digestive processes. Rather, the relevant occurrences must—in a sense that is intuitively intelligible, but hard to define—be *aimed at* digestion.

It is sometimes suggested that the notion of culmination does not apply to so-called *activity* verbs or verb-phrases. According to the traditional Vendlerian classification, these are verbs or verb-phrases such as 'rolling', 'walking', and the like, which do not semantically encode a 'telic point'. The semantic point is clearly correct, but it is not relevant to the notion of culmination as I intend

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[18] For a discussion of this entailment in the context of formal semantics, see Gendler Szabó (2004, 2008). The entailment gives a useful test for sorting verbs in the four aspectual classes distinguished by Vendler (1967). Notice that the entailment does not hold for *all* verbs or verb phrases that intuitively express intentional actions: 'Bob started to run' does not entail 'Bob was starting to run' (it is not even clear that the latter is grammatical). I think it is plausible, however, that 'boundary' actions such as starting to run will turn out to be parasitic upon more familiar extended actions: you cannot have *started to run* unless you *ran*. For this reason I ignore them here.

it here. Consider the activity of walking. I take it that an event reportable as 'Raji walked' is a *culmination* of a process of walking, just like an event reportable by 'the boulder rolled to the bottom of the hill' is the culmination of a process of the boulder's rolling down the hill. I see no problem in taking Raji's walking to be composed of those of her bodily movements that are *aimed at* her having walked, just as the process of digestion is composed of those bodily and biochemical processes inside an organism that are aimed at the extraction of nourishment from its food. The difference is just that activity verbs and verb-phrases, lacking a semantically associated telic point, allow for a less well-defined range of culminating events than verbs and verb-phrases that *do* encode telic points (so-called *accomplishments*): the class of events that could count as culminations of the process of Raji's walking is simply much less semantically constrained than the class of events that could count as culminations of the boulder's rolling to the bottom of the hill.[19]

How does all this bear on my approach to intentional action? The point is not, of course, to reduce the intentionality of actions to the kind of directionality that characterizes processes in general. The movements of Raji's legs embody her grasp of a way to get to the kitchen; processes of digestion, or a boulder's rolling to the bottom of the hill, obviously do not embody anyone's grasp of anything. There seems to be no prospect of reducing the former to anything like the latter. Nevertheless, the general point about the directionality of processes, if correct, provides a crucial bit of context for my specific claims about actions.

What these considerations show is that the individuation of processes in general—including such straightforwardly physical processes as a boulder's rolling to the bottom of the hill or processes of digestion—involves looking beyond the here and now. If this is right, however, then there is no special problem with the idea that the individuation of *bodily movements* might involve looking beyond the here and now. Thus, there is no special problem with the idea that two bodily movements that share all their intrinsic physical qualities might nevertheless differ *as bodily movements*. I hope, therefore, that having this general framework in place might help defuse at least one important source of resistance to my approach.

[19] One reason why some theorists have thought that the notion of culmination does not apply to activities is that they have thought that the inference from '*S* is Φ-*ing*' to '*S* has Φ-*ed*' is valid for them (Vendler 1967: 101; Marcus (2012): 214). However, as several authors (Dowty 1979: 166–172; Rothstein 2004, loc. 368–380; Crowther (2011): 11) point out, this seems incorrect. Consider an activity that is *granular*, such as walking. A sequence of movements that is shorter than a single step is not an event of walking. Nevertheless, a person who was walking continuously from t_0 to t_{10} was surely walking at any moment during that interval. In particular, she was walking at t_1, even though at t_1 she had not (we might assume) yet completed single step, and so it was false of her that she *had* walked. Once again, it seems better to say that a process of walking allows for a vast range of culminating events, rather than that the notion of culmination does not apply to it.

IV. CONCLUSION

My aim in this paper was to argue against the standard story of action, by arguing against one of its presuppositions—namely, that intentional actions can be decomposed into a mental component and a bodily, and presumably mindless, one. As I have tried to argue, the problem of subsidiary actions shows that this assumption is untenable: there are cases of doing one thing by doing another which cannot plausibly be explained in terms of an independent representation of that instrumental structure. The solution, I urged, lies in rejecting the presupposition that the bodily movements that constitute our intentional actions are mindless. Rather, as I suggested, they embody our practical grasp of ways of acting.[20]

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