

Inference as a mental act

Belief is the most difficult topic because it is so difficult to hold in view and correctly combine the psychological and the logical aspects.
(Anscombe 1995, 26)

I will argue that a person is causally responsible for believing what she does. Through inference, she can sustain and change her perspective on the world. When she draws an inference, she causes herself to keep or to change her take on things. In a literal sense, she makes up her own mind as to how things are. And, I will suggest, she can do this voluntarily. It is in part because she is causally responsible for believing what she does that there are things that she ought to believe, and that what she believes can be to her credit or discredit. I won't pursue these ethical matters here, but will focus instead on the metaphysics that underpin them.¹

This view of inference is quite natural, but it is obscured by familiar philosophical ideas about action, causation, and about inference itself. Full treatments of these ideas are beyond the scope of this chapter. So my modest aim is to describe in some detail a conception of inference that allows us to take literally the idea that a person can be the sustaining and originating cause of her own beliefs. The core of my view consists of three ideas about inference.

- (i) An act of inference is a causing, and not a cause, of believing.
- (ii) In drawing an inference, the believer is the cause.
- (iii) The believer does not cause the act of inference.

¹ The work in this essay develops ideas in (Hunter 2018b), and is part of a larger project currently in preparation.

Here are two examples. Jones looks out the window and sees that it is raining hard.² She knows that a strong rain tends to melt snow quickly. So she concludes that the snow on the ski slopes will melt soon. Sarah believes that her son is not selling drugs, even though she has known for some time that the police are suspicious. But she finds the evidence to be inconclusive. She then meets with two police officers who present her with new photos and a signed witness statement. After carefully considering this new evidence, Sarah continues to believe that her son is not selling drugs. The view I want to explore is that in cases like this, where a person forms or retains a belief after reflecting on evidence that is strong but not conclusive, she voluntarily causes herself to start or to continue believing something.

In section 1, I will sketch the ideas about action, causation, and agency that underlie my view. In section 2, I will consider Ryle's reasons for thinking that an inference is not an action but is, rather, the onset of a state of belief. In section 3, I will consider an objection to the idea that in inference a person acts on herself. In section 4, I will explore the roles that choice and desire play in inference. I will suggest that inference is voluntary but not always willing.

1. Actions, causings, and agents

² The is slightly adapted from John Broome (2014), who adapts it from Boghossian (2014). John Broome agrees that an inference is something a person does. "Some processes of reasoning are 'active', by which I mean they are done by the reasoner. Active reasoning is something we do, like *eating*, rather than something that just happens in us, like *digesting*." (Broome, 2014, p. 622; my emphasis) But I will argue that unlike eating, inferring is not done by doing something else and cannot be intentional.

My view of inference is a version of agent causation. While a full treatment of this is beyond the scope of this chapter, it will be helpful to flesh out the view a bit. The idea that acts are causings, or at least that some acts are causings, was defended by Judith Jarvis Thomson and by Kent Bach in the 1970s, who cited earlier work by Chisholm and Von Wright. And it has been developed, more recently, by Maria Alvarez and John Hyman.³ The idea is simple enough. The act of scratching a table is not an event that causes the resulting scratch. Rather, the act is the causing of the scratch. The cause is whatever did the causing. A nail, perhaps, or little Billy who wielded it.

I am not assuming that all acts are causings. Some acts are defined in terms of a characteristic result. To scratch is to produce a scratch, to melt is to make something to melt, to bend is to cause something to bend, to push is to make something move, and etc. But not all actions have a characteristic result. Walking is an action, but there is no characteristic result that walking is in every case the causing of. The same is so for certain speech-acts. Asserting is an action, but it has no characteristic result. Thomson noted this fact about actions, though she put it in linguistic terms by saying that not all verbs of action are causal verbs.⁴ But she also held that every action is either a causing (that is, reportable with a causal verb) or is done by doing something that is a causing. Walking, for instance, is done by moving one's legs and those acts

³ Thomson, J.J. (1977), *Acts and other events*, Ithaca: Cornell University Press; Ch. XVIII; Bach, K. (1980), Actions are not events. *Mind*, 89(353) 114-120; Alvarez, M. & Hyman, J. (1998), Agents and their actions, *Philosophy*, 73, 219-245.

⁴ (Thomson 1977)

are causings. Likewise asserting is done by moving one's mouth or one's hands in certain ways, and those acts are causings.

Drawing an inference is, in this respect, unlike asserting something. Asserting something is always done *by* doing something else. One cannot simply assert something, one has to do it in a certain way, by making certain sounds or hand gestures. But drawing an inference is not like that. Maybe this can be put by calling inference a basic act. John Heil has objected to this.

I am unable to shake the conviction that it is a mistake to regard the adoption of beliefs as actions in any sense, whether basic or non-basic. This conviction is not founded solely on the observation tendered earlier that the forming of beliefs is not something that can be accomplished by a sheer act of will, but on the evident fact that our beliefs seem to come to us rather than issuing from us.

Paying a debt is something I can set out to do; believing something is not. (Heil 1983, 358)

Heil assumes that action is basic only if involves an act of will. I have not spoken of acts of will. But I deny that to be an action an inference would have to be caused or generated by an act of will. So far as I can see, an inference need not have any cause. The believer does not cause the inference; she is the one inferring. And it is anyway a mistake to think that action is essentially tied to the will. When a bit of acid dissolves some rubber, the acid acts on the rubber, even though the acid has no will. Heil offers as further evidence the contention that our beliefs "come to us rather than issuing from us", but this seems to me to beg the question. And while he is right

that we cannot believe or infer intentionally, this does not show that inference is not an action. The acid does not intentionally dissolve the rubber either.⁵

Heil is right that a person cannot draw an inference order to achieve some further end or purpose. Inferences, in this sense, cannot be intentional. I will just take this as a datum, but it would be nice to know why. What is it about an act of inference that explains why it cannot be intentional? One might think it is because the act results in a belief state and that one cannot be in any state on purpose. But I am not sure this is right. For one thing, it seems one can be in some states on purpose. Jones is a vegan in order to help fight climate change. Simon is unemployed to focus on his art. What is more, the result of an intentional action can be intentional. The scratch Billy made on the car with the nail was intentional. And even if the resulting state of affairs is not intentional, the causing of it could be. Sarah scared the racoon intentionally, even if the racoon's fear was not intentional. So the fact that acts of inference result in states of affairs does not seem to me to explain why inferences cannot be intentional.

Perhaps it has to do with the fact that inferring requires taking the results of one's inference to be right and to be supported by one's reasons. Here is how Alan White put the idea.

One can wrongly infer, but not infer in the belief that one is wrong, since the position taken up must be one which the person has come to believe to be related in a certain way to a previous position. This is why no question can

⁵ The idea that acts are causings is compatible with different views about what sorts of entities can be agents and about the role of events in causation. Thomson (1978) says that events, in addition to individuals and bits of substances can be causes, whereas Hyman (2015) denies that events can be agents. I won't pursue this here.

arise of inferring voluntarily or by decision or resolution or on request. (White 1971, 291-2)⁶

I disagree with White on whether an inference can be voluntary, though this may only be a terminological matter. But I agree that we cannot infer in the belief that the result of our inference is false. I also agree that inference requires believing that the result is supported by our reasons, or at least that it requires not believing that the result is not supported by them. But why should we think that inference could be intentional only if an inference *could* result in a belief one took to be false or to be unsupported by one's reasons? Jones thinks that her reasons do support believing that the snow will melt quickly. She could surely draw that inference in the hope that by drawing it she would please her mom. Why couldn't she then make the inference *in order* to please her mom?

One might think that an inference cannot be an act if it cannot be intentional. This would be so if the following principle were true.

S's V-ing is an act only if S can V intentionally.

But this principle is implausible. The tree outside my house scrapes my roof, which is an act, but the tree is not able to do anything intentionally. What about the following?

V-ing is an act only if it is possible to V intentionally.

Even though trees can't scratch anything intentionally, people can. So this principle survives the objection I just considered. And if it is true, and if it is also true that an inference cannot be intentional, then it would follow that inferences are not acts. But is this principle true? A pine

⁶ Notice that these considerations also explain why inference cannot, as he sees it, be voluntary. I turn to this in below.

tree can produce cones, and I take it that producing cones is an act. But must it then be possible to produce cones intentionally? (I can intentionally make a tree produce cones, but this is different.) I am not sure. And, anyway, what would explain such a principle? In effect, it holds that intentionality is essential to action. But on the view I have been exploring, it is causation and not intentionality that is fundamental to action. The idea is that to act is to cause or bring about some change. Some actions are intentional, just as some are voluntary and some are reluctant. But there is nothing in the idea of action itself that requires that any act be potentially intentional. And while intentional acts done by people are of interest to ethics, ethics is just as interested in what people do inadvertently and by mistake. Indeed, in considering whether a person ought to have done something, it often matters little whether the person did it intentionally or what her intentions were.⁷ So I find it hard to see what considerations could support such a principle.

And notice just how extreme it is. Some of our capacities are ones that, while we cannot exercise them intentionally, we might have been able to. Most of us are able to weep, but few of us can weep intentionally. We can imagine that with training and practice we might become able to weep intentionally, in order to get something we want. Maybe good actors can already do this. So it is plausible to think that *some* of our current powers are ones we could have been able to exercise intentionally even though at present we cannot. But the principle I am considering says that for *every* power we have, we could have been able to exercise it intentionally, and this just in virtue of its being a power. This strikes me as implausible.

⁷ This is a point that Thomson makes, (Thomson 1978, 253).

Finally, it seems to me that if we are to take at face value the idea that in inference we are making up our own minds, then we need to reject that principle linking action and intentionality. In effect, insisting on the principle begs the question against my view.

2. *Inference and the onset of believing*

Gilbert Ryle argued that an inference is the onset of a state of affairs and not an action at all. Considering his reasons will help clarify my view. And, as we will see, Ryle was not himself completely convinced by them.

Here is how Ryle objected to the idea that inference is an action.

We saw that there was some sort of incongruity in describing someone as being at a time and for a period engaged in passing from premises to a conclusion. ‘Inferring’ is not used to denote either a slowish or a quickish process. ‘I began to deduce, but had not time to finish’ is not the sort of thing that can significantly be said. In recognition of this sort of incongruity, some theorists like to describe inferring as an instantaneous operation, one which, like a glimpse or a flash, is completed as soon as it is begun. But this is the wrong sort of story. *The reason why we cannot describe drawing a conclusion as a slowish or quickish passage is not that it is a ‘Hey, presto’ passage, but that it is not a passage at all....* [R]eaching a conclusion, like arriving in London, solving an anagram and checkmating the king, is not the sort of thing that can be described as gradual, quick or instantaneous. (Ryle, 1949, 301-2; italics added)

‘Conclude’, ‘deduce’ and ‘prove’, like ‘checkmate’, ‘score’, ‘invent’ and ‘arrive’, are, in their *primary* uses what I have called ‘got it’ verbs, and while a person’s publications, or other exploitations of what he has got, may take much or little time, his *transition* from not yet having got it to having now got it cannot be qualified by epithets of rapidity. (Ryle, 1949, 276; italics added)

Ryle’s concern, in that first passage, is with the idea that an inference has a duration. He thinks this cannot be right, since if it were we should be able to sensibly ask how long one took, and whether it was slow or quick. But, as he correctly notes, these questions make no sense. He then rejects the suggestion that an inference has an instantaneous duration, completed as soon as it is begun.

On my view, an inference is a causing and I can accept that inferences have no duration. For causings have no duration. We need to distinguish how long an exercise of a capacity *lasts* from how long the exercising *takes*. The drop of acetone melted the bit of rubber for two minutes before it was wiped off. The capacity was exercised for two minutes, but the exercising itself was neither fast nor slow, for it took no time. Likewise, a person might hold their standing position for twenty seconds. The holding lasted for 20 seconds, but the holding itself took no time. If the holding itself took time, we should be able to ask whether it was a quick holding or a slow one, and whether it got faster near the end. And one could be asked to speed up or slow down one’s holding of a position. These questions make no sense, because holding one’s position is causing it not to change, and causings don’t take time.

After Ryle rejects the idea that an inference is an event, he settles on the idea that an inference is the onset of a state of affairs. The idea is that when Jones infers that the snow on the slopes will melt soon, that inferring is the onset or start of her believing that the snow on the

slopes will melt soon. It is the onset of a certain mental state of affairs. I agree that onsets have no duration, and so it would make little sense to ask whether the onset was quick or slow. I also agree that onsets are not acts. They seem, rather, to be a possible result of an act.

Thomson agrees that an inference is the onset of a state of affairs. She groups inferring with deducing, discovering, and remembering.

Alfred's recalling this and such is an onset of the state of affairs that is his remembering this and such; Bert's recognizing so and so is an onset of the state of affairs that is his being aware of who or what so and so is; Charles's noticing thus and such is an onset of the state of affairs that is his being aware of thus and such; etc. (Thomson, 1977, 230)

(She considers onsets to be events, and so does not share Ryle's discomfort with the idea of an instantaneous event.) I am inclined to agree that a sentence like

Peter discovered his husband's infidelity.

can report the onset of Peter's knowing about the infidelity, and that a sentence like

Simon remembered where he left his keys.

can report the onset of Simon's awareness of the key's location. But I don't think that inferring properly belongs in this group. For one thing, the connection to reasons is quite different. One draws an inference in light of certain reasons one has, but one does not discover or remember something in light of a reason one already has. What is more, one can try or attempt to remember or discover or find something, but one cannot try or attempt to infer something. Here is how Alan White put the point, though he spoke of achievements instead of onsets.

Inferences are not achievements or arrivals, because, unlike discoveries (and also unlike deductions) they are not something we can try to, promise or

resolve to make or can manage to obtain. We can not use means and methods or rely on luck to infer something. We can ask someone what he would infer from the evidence but not how he would infer. An examination paper could ask the candidates to solve, prove, find, discover or even deduce so and so, but it could not sensibly ask them to infer. (White 1971, 291)⁸

So I am not convinced that an inference is the onset of a state of affairs.

I am also not sure that Ryle was really convinced either. In one place, he suggests that an inference is a *performance* (Ryle 1946, 22). In another, he calls it an *operation* (Ryle 1949, 274), and in a third he suggests it is the *result* of the performance or operation (Ryle 1949, 260). Though Ryle's views on the nature of inference are, at the end of the day, a bit unclear, we know what sort of view he was opposing. He was opposing what he considered the 'para-mechanical idea' of inference as a mental act or process that causes a mental state.

Finding premises and conclusions among the elements of published theories, [the Epistemologists] postulate separate, antecedent, 'cognitive acts' of judging; and finding arguments among the elements of published theories, they postulate antecedent *processes of moving to the 'cognising' of conclusions from the 'cognising' of premises*. I hope to show that these separate intellectual processes postulated by epistemologists are para-mechanical dramatisations of

⁸ White says that "[t]o infer is neither to journey towards, nor to arrive at or to be in a certain position; it is to take up, to accept or to *change to* a position." (White 1971, 291; italics added) This seems compatible with the idea that an inference is the causing of the change. For more discussion, see (Rumfitt 2012).

the classified elements of achieved and expounded theories. (Ryle 1949, 291;
italics added)

Ryle is opposed to the idea that inferring is a process that is separate from the resulting belief. A lot rides, of course, on what he meant by 'separate'. But a natural interpretation is that on the para-mechanical view inferring is an event or process that causes the resulting belief.

Some recent accounts of inference strike me as versions of a para-mechanical view.

Robert Audi says that an inference "produces" a belief as a "process of passing from one or more premises to a conclusion" (Audi 1986, 31) According to John Broome, "[r]easoning is a mental process through which some attitudes of yours...give rise to a new attitude of yours." (Broome, 2014, 622). Paul Boghossian says that "[i]t's not sufficient for my judging (1) and (2) to cause me to judge (3) for this to be inference. The premises judgments need to have caused the conclusion judgments 'in the right way'. (Boghossian 2014, 3). I agree with Ryle in opposing such para-mechanical views.

3. Acting on oneself

On my view, in inference a believer causes herself to believe something, and so acts on herself. This might seem to be the exact opposite of something Stuart Hampshire says.

The man who changes his mind, in response to evidence of the truth of a proposition, does not act upon himself; nor does he bring about an effect.

(Hampshire 1975, 100)

Hampshire says that when a person changes her mind in response to evidence, she does not act on herself. When Jones concluded that the snow on the slopes will melt soon, she did not, Hampshire seems to be saying, *make up her mind*, at least not in a straightforward causal sense

of that phrase. But I think Hampshire's view may be more nuanced than this. We need to distinguish two ways of acting on oneself. And we need to avoid the temptation to hypostasize believing.

One way to act on oneself is to do something that causes or brings about a change in oneself. So, for instance, Jones cuts her nails with a pair of clippers. In doing that, she acted on her nails (and so on herself) by closing the clippers on them. Here she is agent and patient of the action. She is agent since she did the cutting. She is patient since she was cut. A person can cause herself to believe something in this sort of way. Jones can make herself believe that the glass of beer is empty by emptying it. Here she is again both agent and patient. She is agent because she did something that caused her to believe the glass is empty. And she is patient since her beliefs were changed. But, I take it, this is not a case of making up one's mind through reasoning.

Another way to act on oneself is to do something that is *itself* a changing of oneself. So, for instance, Jones can change her bodily position by crossing her legs. Here again she is both agent and patient. She is agent since she crossed her legs. She is patient since her legs were crossed. But crossing one's legs is not an action that causes or brings about a change in one's position. Crossing one's legs *is* changing one's position.

On my view, making an inference is acting on oneself in this second way. It is not an action that has *as a consequence* that one believes something. It is not acting on oneself in the way that cutting one's nails is acting on oneself. Rather, it is acting on oneself in the way that crossing one's legs is acting on oneself. Making an inference is changing or sustaining one's state of believing. Perhaps this is what Hampshire had in mind in the passage I quoted.

The tendency to hypostasize believing, to treat belief states as particulars in the same ontological category as fingers and nails, can make this view difficult to see. For that tendency

encourages the idea that if inference is an action it must be like clipping one's nails. Matthew Chrisman seems to have this sort of view in mind.

What is involved in maintaining a system of beliefs? As the verb phrase suggests, it is dynamic rather than static. Maintaining something (e.g., a flowerbed) can be a reasonable answer to the question "What are you doing?" ... More specifically, as I am thinking of it, maintaining a system of beliefs involves *examining* and *adjusting* existing *beliefs* in light of newly acquired beliefs or propositions assumed to be true for various purposes (e.g., by raising or lowering one's credence in the old beliefs, or by *reconceiving* the inferential/evidential relations between beliefs if they seem to be in tension under various suppositions). It can also involve seeking out new beliefs—e.g., by investigation or deliberation—when one's system of beliefs leaves some important question open or some strongly held belief apparently unsupported by other beliefs." (Chrisman 2016, 16; italics added)

Three ideas about believing that I have critiqued elsewhere are at work in this passage.⁹ First, states of believing are treated as particulars in the same category as plants (hence the plural 'beliefs'); they are taken to have semantic properties (for they are taken to bear inferential relations to one another); and they are considered to be things a person can, through reasoning, act on and adjust. That is the point of Chrisman's analogy that maintaining one's beliefs is like

⁹ What I say here is deeply indebted to the important work in (Marcus 2006) and (Marcus 2009). I develop the idea that beliefs are states a person is in and not states inside a person in (Hunter 2001) and (Hunter 2018b). Similar views are in (Kenny 1989) and (Steward 1997).

maintaining the geraniums in one's flowerbed. Pictured this way, acting on one's beliefs would be like acting on one's nails.¹⁰

Chrisman is responding to Matt Boyle, who has argued that we will have trouble understanding a person's responsibility—their agential control—for believing what they do if we think of believing as a state.¹¹ As Boyle sees it, on the state view

[i]f we exercise agential control over our beliefs, this must consist in our performing occurrent acts of judgment which give rise to new beliefs, or cause extant beliefs to be modified. Beliefs can at most “store” the results of such acts. So a person's agency can get no nearer to her beliefs than to touch them at their edges, so to speak.
(Boyle, 2009, 121)

Boyle's thought is that while the state view of belief can allow acts of judging or affirming, their role must be limited to being acts that cause or change states of belief. But this, Boyle charges, distorts our relation to our beliefs.

¹⁰ This idea also informs standard account of deliberation. According to Nishi Shah, reasoning involves acting on and attending to one's mental states: “normally when we *reflect on our attitudes*, we do not merely come to know what we in fact believe or intend; we determine what we shall believe or intend.” (Shah 2013, 311; italics added). John Broome resists the idea that reasoning involves attending to our mental states, he holds onto the idea that it involves attending to objects: in reasoning “you *operate on* the contents of your premise-belief, following a rule, to construct a conclusion, which is the content of a new belief of yours that you acquire in the process.” (Broome 2014, 624; italics added)

¹¹ Pamela Hieronymi shares Boyle's concerns. See, for instance, (Hieronymi 2009)

[The state view] appears to leave us responsible only for *looking* after our beliefs, in something like the way I may be responsible for looking after my bicycle. I have chosen to acquire this bicycle, and I can take steps to ensure that it is in good condition, that it is not left in a bad spot, etc. I am responsible for it as something I can assess and act upon, something in my care. I am not responsible for it, however, in the way I am responsible for my own intentional actions. My actions stand in a more intimate relation to me: they are not things I control by acting *on* them; they are my doings themselves. (Boyle, 2009, 121; italics in original)

Of course, no one thinks that beliefs are like files on hard drives or recordings on machines, or that our relation to them is like our relation to our bicycles. Everybody should agree that believing is not like that. The purpose of Boyle's caricature is to force us to say how believing is different.

I think we can make a start on seeing the difference if we consider an analogy between believing and owning. Jones owns many books and she can reflect on and organize what she owns. But she does this, not by reflecting on and organizing her *possessings*, but by reflecting on and organizing her *possessions*. Her possessings are not things at all, let alone things she can causally interact with. Something similar is true for reflection on how one takes things to be. When Jones considers how things are, her attention is directed at what she believes not at her believings. She is attending to the possibilities she thinks obtain and to those that remain open. She is not attending to her mental states.

There is of course an important disanalogy between believing and owning. The objects of ownership can be physical things that one can causally interact with. Jones can move and pile up her books. But the objects of belief are not things one can causally interact with. One cannot

move or arrange them. In this respect, a better analogy is with bodily position. On my view, to believe something is to be in a certain position with respect to how things are and might have been, with respect to a range of possibilities. We can compare this to occupying a position in space. Jones can maintain or adjust her position by moving her legs and arms. This is not a matter of doing something that causes a change in the positions of her arms and legs. It is, rather, doing something that consists in changing her position. This is how we should think of reasoning. A person maintains or changes her position on the way things are, not by doing something that sustains or changes that position, but by doing something that is itself a sustaining or changing of it. She is the agent of the action, and also its patient, and is causally responsible for the result.¹²

4. Inference, choice, and desire

I said that an inference cannot be intentional. But it is a separate matter whether an inference can be voluntary. I am inclined to think it can, though getting clear on the relevant sense of ‘voluntary’ is not easy.¹³

A person does something voluntarily if she chooses to do it.¹⁴ This is just a sufficient condition, and it applies only to what a person does, not to what she may voluntarily undergo or to ways she may voluntarily be. And it leaves open what role the choosing plays. If choosing to do something requires that one choose to do it before one does it, then inference is not voluntary

¹² I develop this view of believing in a book manuscript, in preparation.

¹³ Boghossian says it is voluntary (Boghossian 2014, 3), though he does not elaborate.

¹⁴ What follows relies on the discussion of voluntariness in (Hyman 2015).

in that way, for a person cannot choose to draw an inference. We cannot decide or make up our mind in advance to believe something.

But the idea of choice also suggests that the person had alternatives. A person who does something by choice was not coerced into doing it. Coercion is itself a nuanced matter, for a person can be coerced into doing something, and so not do it voluntarily, even when she could have refrained from doing it. A person who does something in response to a realistic threat of serious violence does not do it voluntarily, even if she could have refrained. Still, if a person does something, and could have reasonably refrained from doing it, and did not act from ignorance, then she did the thing voluntarily.¹⁵

Could an inference be voluntary in this second way? Some have said that when a person draws an inference her drawing it is compelled or determined by the evidence she has. This suggests that the person has no alternative but to draw the inference and so could not refrain. If so, then an inference would not be voluntary in this second way. Here is how David Owens puts the point. His example involves John's being the murderer.

¹⁵ The knowledge condition in general is complex. Does it require knowing or can believing be sufficient? Does the absence of knowledge or belief make the action involuntary or just non-voluntary? In the case of inference, anyway, a person must know both that she is drawing the inference and something about the reasons she has for drawing it. This follows, I think, from the fact that a person who believes something knows that she does. And this knowledge condition is interestingly similar to the knowledge condition in the case of intentional action. I discuss all of this in work currently in preparation.

[W]hat directly determines how we think about John are his bloody shirt and absence from work. I do decide to attend to these things, but once that decision is made, the evidence takes over and I lose control. It might be argued that I held off from forming a view on the basis of his pleasant demeanor alone and waited for more evidence. Doesn't this amount to an exercise of control over what I believe? But all that occurred was that his agreeable countenance proved insufficient to close my mind on the matter, to eliminate doubt about his innocence, and so I set off once more in search of evidence. In the end, it is the *world* which determines what (and whether) I believe, not me. (Owens 2000, 12)¹⁶

According to Owens, when a person draws an inference in light of the evidence she has, her evidence leaves her no alternative in the matter. John Heil agrees, saying that in inference believers are “largely at the mercy of their belief-forming equipment.” (Heil 1983, 357). The idea that inference involves the operation of autonomous belief-forming equipment is reminiscent of the para-mechanical account opposed by Ryle.

Importantly, even if Owens and Heil are right, this would not show that an inference is not an action done by the believer. Think again about the drop of acetone. When it touches the rubber its power to dissolve the rubber is activated, and there is no alternative. (Barring masks, which we can set aside.) The conditions that are necessary for the acetone's exercise of its

¹⁶ John Heil agrees, saying that even in inference a believer is “largely at the mercy of their belief-forming equipment.” (Heil 1983, 357). My thoughts on Heil and Owens and on doxastic agency are influenced by Gary Watson's (2003).

capacity to melt rubber are also sufficient for that exercise. Still, the acetone melted the rubber, and its melting of the rubber was an exercise of its capacity to melt it. If Owens is right, a person's having adequate evidence is sufficient for the exercise of her capacity to infer. But this would not entail that the person did not herself make the inference. So Owen's view is compatible with my idea that an inference is a causing of a believing by a person.

Still, it seems to me that Owens overstates the power of a person's evidence. We make inferences when the evidence we have is adequate but not conclusive. In such cases, it seems to me, we are free both to draw the inference and to refrain from drawing it. Drawing it would be reasonable, because the evidence we have is adequate. But refraining from drawing it would also be reasonable, because that evidence is not conclusive. Whether we draw it is up to us and is thus voluntary in the second way I specified above.

Trudy Govier defends this view.¹⁷ She notes that discussions of inference tend to focus on cases where the evidence strongly favours one thing.

The restriction of decision and choice to this kind of context seems to me to be mistaken. I think that this mistake is a result of concentrating too much on cases where there is no problem about what to believe;--where evidence is taken in and is so straightforward in its import that there is no need for conscious reflection. And of course many (perhaps most) cases in which people come to believe things are like this. But not all are, and this is important. When

¹⁷ So did Roderick Chisholm, (Chisholm 1968, 224). For an excellent discussion of the history of voluntarism about belief, see (Pojman 1986). More recently, the idea that an inference is voluntary is defended by Philip Nickel (2010). I discuss his views below.

one has insufficient or ambiguous evidence, or when one has to decide whether to go and seek evidence, and if so, what kind, there is a conscious reflection concerning what to believe. (Govier 1976, 653-4)

There are two elements here. One is that it would be reasonable to believe the thing in light of that evidence, but also reasonable to continue to suspend belief. (Since suspending belief is simply maintaining one's view, we should think of suspending belief as *sustaining* belief.) The second element is that the belief is formed in response to that evidence, and not in response to something the person wants. We should not think of voluntary inference as requiring that the believing be based on non-epistemic considerations. We should allow that the result of a voluntary inference could be perfectly reasonable.¹⁸

The examples I gave in section 1 involve these same two elements. Jones has good reason to think the snow will melt quickly, but her evidence is not conclusive. It would be reasonable for her to believe it, but also reasonable for her to suspend judgment. In light of that evidence, she infers that it will melt soon. Making that inference is taking the evidence to be adequate. Sarah has good evidence that her son is dealing drugs, but it is not conclusive. It would be

¹⁸ Chisholm (1968) holds that if it is reasonable for a person to believe something given her evidence, then her believing it is either morally permitted or morally required. Miriam McCormick (2015), among others, reject this evidentialist view and argues that a person may be morally permitted or even required to believe something that conflicts with her evidence. In (Hunter 2018a) I argue for a middle position: what it is reasonable for a person to believe always depends on her evidence, but what she ought to believe always depends on what she ought to know and this, in turn, depends on what she ought to do, feel, think and on how she ought to be.

reasonable for her to believe it, but also reasonable for her to sustain her current beliefs. In light of that evidence, she sustains her view rather than changing it. Not concluding that he is dealing drugs is taking the evidence to be not conclusive.¹⁹

It seems to me that cases of this sort are commonplace.²⁰ We often have good but not conclusive evidence that some possibility obtains. Believing that it does would be reasonable. Suspending belief would also be reasonable. In such cases, it is up to the believer whether she changes or sustains her belief state. Drawing the inference is taking the evidence to be adequate. Suspending belief is taking it to be inconclusive. Both options are rationally open to the believer, who is free to change or sustain her take on the world. The result, in either case, will be due to the believer's exercise of her inferential power.²¹

¹⁹ But doesn't a person's epistemic character play a role? Isn't her inference determined by her evidence together with her character? I don't think so. People do have epistemic character traits, such as being hasty or cautious. But these traits are partly the products of repeated acts of inference, and do not cause them. A person's selfishness does not make them act selfishly.

²⁰ William Alston, who famously argued against a deontological conception of epistemic justification on the grounds that belief is not voluntary, nonetheless allowed that in cases like Sarah's belief might be voluntary. (Alston 1988, 265) But, he insisted, such cases are so rare that no plausible conception of epistemic justification should be rested on them. I disagree about their rarity.

²¹ Roger White (2005) sees an incoherence in this idea. But, so far as I can tell, it depends on thinking of voluntary inference as involving making a choice, which I deny. For discussion of this, see (Nickel forthcoming).

This point is easily obscured if we model inference on formal deduction. Some cases of deduction make voluntary inference seem suspiciously easy while others make it seem invariably irrational. Disjunction introduction, where the disjuncts are logically independent, is a case of the first. Suppose Stephanie says the following.

It is snowing; so either it is snowing or Toronto is in Canada; so either it is snowing or Toronto is in Canada or the 504 streetcar will be late; and so on.

If one thinks of this as a case of inference, then one will be tempted to think that it is entirely up to the believer how long to continue drawing the inferences. Stephanie might decide to keep going, drawing more and more consequences from her initial premise. And she might continue until she chooses to stop. She might even do so intentionally, in order to bother her brother, or to win a bet, or just because she finds it amusing. Thinking of this as a case of inference will make it seem all too easy to infer voluntarily. But this is not a case of inference at all. At least, it is not what I take inference to be. I take it that an inference requires changing or sustaining one's view of which possibilities obtain. But in our story Stephanie is not changing or sustaining her mind about which possibilities obtain. She is not adding to her map of the world. Nor is she sustaining it. She is simply formulating new ways to state what she already believes.

This case of disjunction introduction makes rational voluntary inference look suspiciously easy. Cases of modus ponens can make it look invariably irrational. Suppose Margaret believes that if it is raining, then the snow will melt. And suppose she starts believing that it is raining. She might then report her reasoning by telling us this.

If it is raining the snow will melt; and it *is* raining; so, the snow will melt.²²

One might think that if she performed an inference here it would have to be located in between believing the premises and believing the conclusion in her report. That is, one might think that Margaret inferred that the snow will melt *after* already believing the conditional and its antecedent. But it is hard to see how such an inference could have been rationally voluntary. Once she starts believing the second premise she has no rational option but to believe the conclusion. If it were up to her whether to draw it, then this would be a freedom to be irrational.

But this description of the case is misleading, for it locates the inference in the wrong place. I agree that Margaret must believe the conclusion, given that she believes the premises. But this is because *in believing* those premises she already believes the conclusion. She did not form a further belief in addition to the conditional and its antecedent. Given that she believed the conditional, in coming to believe its antecedent she came to believe its consequent. It is misleading to suggest that an additional step is needed in her reasoning, to get from belief in the premises to belief in the conclusion. Think of this in terms of adding information to a novel. Suppose the author has already stated that in the novel's world snow melts whenever it rains. If she then adds to the story that it is raining, she therein adds that snow is melting. She does not need to add a further sentence saying that the snow is melting. That is already so in the world of the novel.

Margaret may well have drawn an inference in this story. Whether she did depends on how she came to believe that it is raining. Suppose she was listening to the radio while preparing

²² The example is from Broome (2014). My variation on it is not a case of modus ponens. For another paper that takes deductive reasoning as the model of inference, see (Hlobil 2019).

her dinner and heard the announcer say that it is raining. This is some reason to think it is raining, but it is not conclusive. Margaret trusts the weather reporter but also knows the report is sometimes about a distant city. This is exactly like the case Govier describes. Neither belief nor suspension of belief is rationally mandatory. Suppose Margaret concludes that it is raining. On my view, this was a voluntary inference. And, on my view, she therein also inferred that the snow will melt. And this inference too was voluntary. Indeed, it was the same inference. So the case of modus ponens can make voluntary inference seem impossible, but only by mis-locating the inference.

Philip Nickel agrees that inference can be voluntary. But in discussing its scope, he too seems to mis-locate inference. He says the following.

My main aim is to establish the intuitive plausibility of the view that there are some instances of doxastic willing, and defend the view against prevalent objections. But for all I have said here, we are often not in voluntary control of our beliefs, for in many cases there may be only one reasonable option. When I see a dog race toward me, I do not feel free to believe that there is no dog (or no animal) racing toward me, no do I feel free to suspend judgment. It seems I come to believe it regardless of my doxastic character traits, because there is, at the end of the day, only one doxastic option. (Nickel 2010, 331)

As he describes the case, there is a gap between his seeing the dog race towards him and his believing that the dog is racing towards him, and during this gap he forms the belief that it is. But I find this hard to understand. Normally, if a person *sees* that a dog is racing towards her then she *knows* that it is. Seeing is a way of knowing. And if she knows it, then she believes it, since knowing requires believing. Being presented with a fact, with a way that things are, just is

knowing them to be that way. No inference is needed, because none is possible. So there is no room for a gap between seeing that the dog is racing towards him and believing that it is. It seems to me that Nickel is wrong to think that this is a case of *non-voluntary* inference, for it is not a case of inference at all.

We can easily adjust the case to make it one of inference. Suppose that Philip does not see that the dog is racing towards him. He sees the dog running but is uncertain about its path. It might be aiming to attack him or it might be aiming to attack something to the side. Given this, it would be reasonable for Philip to believe that the dog is running towards him, but also reasonable for him to suspend belief. Because he does not see *that* the dog is running towards him, he does not yet believe that it is. It is up to him whether to believe it or whether to continue to suspend belief. So when we adjust the case to make it involve an inference, we see that it is, in the sense at issue, voluntary after all.

I have been suggesting that an inference can be voluntary in a sense I have tried to specify. One might think that an act can be voluntary only if it can be intentional. If so, then either I am wrong to think that inference can be voluntary or else I am wrong to think that it cannot be intentional. But I question this link between the voluntary and the intentional. No doubt many acts that can be voluntary can also be intentional. But why should every act be like that? As Hyman (2015) argues, the concepts of the voluntary and the intentional are keyed to very different aspects of our mental lives. Whether an act is voluntary depends on whether a person was coerced or acted from ignorance. Whether it is intentional depends on whether she did it in order to satisfy a desire she has. Why couldn't there be an act that a person could voluntarily do, in light of certain reasons, but not ever do it in order to satisfy a desire? It seems to me that inference would be precisely such an act.

I have argued that when a person draws an inference, her action is, in a sense I tried to specify, voluntary. But it does not follow that she wanted to make the inference. A person can do something voluntarily while wishing that she were not doing it, and while preferring that she not be doing it. In this sense, her doing it can be unwilling. Sarah might wish she had some better alternative than to report her son to the authorities. When she finally does, she does so intentionally and voluntarily but also, in an important sense, unwillingly. The same psychic complexity is possible in the theoretical realm. A person can draw an inference reluctantly and even unwillingly. There are two sorts of cases.

In one, the person is reluctant because she does not want what she has concluded to be the case. My example of Jones is like that. She spent a considerable amount on the ski trip, and made many personal sacrifices to get there. She will be very disappointed if she is not able to ski. Admitting it would force her to modify her plans, something she did not want to face. And so, she unhappily came to the conclusion that the snow on the slopes will melt soon. By contrast, others in her group were much less committed to the skiing, and were looking forward to spending time with friends. They were much more willing to conclude that the snow on the slopes would melt soon.

A second sort of case is more interesting. In it, the person is reluctant to draw the conclusion because she wishes she were more able to resist drawing it. A slight alteration of my Sarah case is like this. She feels that a truly loving mother would always give her children the benefit of the doubt, and would not be moved by the sort of evidence the police might provide. As she surveys the new evidence, she knows that accepting that her son is selling drugs will make her feel ashamed, and she dreads the look of betrayal in her son's eyes when he confronts her. Still, when she sees the evidence the police provide, she concedes that he is in fact selling

drugs. But her concession is reluctant and unwilling. Of course, she would also much prefer that he not be a drug dealer. But what is distinctive in her case is that she also wishes that she were the sort of mother who could continue to believe in her son's innocence even in the face of all that evidence. That's the sort of loving mother she wishes she were. The prospect of failing in her love for her son makes her reluctant to conclude that he is a drug dealer.²³

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²³ For more on this sort of case, see my (Hunter 2011).

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