

Is Reasoning a Form of Agency?

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1. Is reasoning something the reasoner *does*? We certainly hold the (human) reasoner responsible for her conclusions, criticizing or praising her as irrational or rational. Responsibility seems to be a mark of agency. And if we say that to reason is to come to believe some *p* because one *takes* some considerations as support for the belief, again it will seem we ought to say that reasoning is something that she who reasons does.

However, even leaving infants and non-human animals to the side, there are many things we call reasoning that appear more or less subpersonal. In everyday abductive and inductive inferences, “creative leaps”, and even a good deal of what one reconstructs as deduction, the agent (that is, the person who ends up with a belief) seems in some important sense outside of the process: I *find* myself thinking something, often on reflection at a loss to say just how I got to the belief. And in many such cases, even when I can enumerate considerations that support the conclusion drawn, it can seem gratuitous to say that the conclusion was drawn because I *took* the considerations to support it.

One would like to be able to say both that a hallmark of reasoning is that it is something for which the agent is responsible, and that cases of adults coming to have beliefs that most of us are inclined to think obviously deserve the label ‘reasoning’ count as such. But how can we say both of these when it seems that so much mundane reasoning is not under our control?

One can be responsible for things that one does not directly do. The Under Assistant Vice-President for Quality Control is responsible for what the people on the assembly line do, but of course she is not down on the floor assembling the widgets. Why shouldn’t my relation to much of my reasoning be somewhat like the VP’s relation to widget assembly?

Suppose I move abductively from *the light won't go on* to *I probably pulled the wire out of the fixture changing the bulb*. Some process of which I am not aware occurs. It involves mechanisms that typically lead to my being conscious of accepting a claim. I do not observe them; they are quick, more or less automatic, and not demanding of attention. Once the mechanisms do their thing, the conclusion is, as they say, sitting in the belief box. But given a putative implication, I am not forced to mutely endorse it. If I'm aware that I think *q* and that it was thinking *p* that led to this, I can, if it seems worth the effort, try to consciously check to see if the implication in fact holds. And once I do that, I can on the basis of my review continue to accept the implacatum, reject the premise, or even suspend judgment on the whole shebang. In this sense, it is up to me as to whether I preserve the belief. It thus makes sense to hold me responsible for the result of the process. I say that something like this story characterizes a great deal of adult human inference. Indeed, it is tempting to say that all inference --at least adult inference in which we are conscious of making an inference --is like this: mechanisms of which the reasoner is not aware delivering conclusions that the reasoner then has the option of endorsing or dismissing.

Given that I have the concept of one thing following from another, I will (be in a position to) interpret the appearance of my new belief as (a sign of) the conclusion's following from the premises. Indeed, if I have the concept of consequence, I will often "take" the belief I have formed to be a consequence of the thought I had that was the "input" to that process of which I had and have no conscious awareness. In these cases, inference is accompanied by the agent taking her premises to support her conclusion. But this taking is a reflex of the inference itself. Here, it is not necessary, in order that inference occur, that the agent comes to believe what is inferred *because* she takes her premises to support it.

I've been arguing that the fact that we hold the reasoner responsible for the product of her inference --we criticize her for a belief that is unwarranted, for example -- doesn't imply that in making the inference the reasoner exercises a (particularly interesting) form of agency. Now, it might be said that we hold she who reasons

responsible not just for the product of her inference, but for the process itself.¹ When a student writes a paper that argues invalidly to a true conclusion, the student gets no credit for having blundered onto **the truth**; he loses credit for having **blundered** onto the truth. But, it might be said, it makes no sense to hold someone responsible for a process if they aren't the, or at least an, agent of the process.

Let us grant for the moment that when there is inference, both its product and the process itself is subject to normative evaluation. What exactly does this show? We hold adults responsible for such things as implicit bias. To hold someone responsible for implicit bias is not *just* to hold them responsible for whatever beliefs they end up with as a result of the underlying bias. It is to hold the adult responsible for the mechanisms that generate those beliefs, in the sense that we think that if those mechanisms deliver faulty beliefs, then the adult ought to try to alter those mechanisms if he can. (And if he cannot, he ought to be vigilant for those mechanisms' effects.)

There are obviously methods of belief fixation for which we hold people responsible even when we take the operation of those methods to be in important senses non-agential: the beliefs that implicit bias produces often enough are ones that the bias imposes on the believer. It does not follow, from the fact that we hold an agent responsible for a process, that she is in any strong sense the agent of the process: she may be responsible for the process in the sense that she is under an obligation to try to correct it, even if she does not have conscious control, direct awareness, or even much understanding of it. Of course, something quite similar is true of the Under Assistant VP in charge of quality control.

2. Is it necessary that an adult take --that is, believe --the conclusion of an inference she makes to follow from (or stand in some other epistemically justifying relation to) its premises? Is taking even a *part* of normal adult human inference?

¹ Thanks to Susanna Siegel for making it clear to me that this is what those who think reasoning involves a strong sort of agency presumably have in mind.

It's hard to see why we should think that if I infer q from a set of premises I must take it to follow from *all* the premises. My inference about the light bulb presumably made use of many premises, including some standing beliefs. Some of them, one thinks, I need never have articulated; some of them I might not be able without considerable effort and tutelage to articulate. If taking is something that is straightforwardly accessible to consciousness, this indicates that inferring q from some p 's doesn't require taking q to follow from them.

More significantly, there are cases that certainly seem to be inferences in which I simply don't know what my premises were. I know Joe and Jerome; I see them at conventions, singly and in pairs, sometimes with their significant others, sometimes just with each other. One day it simply comes to me: *they are sleeping together*. I could not say what bits of evidence buried in memory led me to this conclusion, but I --well, as one sometimes says, I just *know*. Perhaps I could by dwelling on the matter at least conjecture as to what led me to the conclusion. But I may simply be unable to.

Granted, not *every* case like this need be a case of inference. But one doesn't want to say that *no* such case is. So if taking is something that is at least in principle accessible to consciousness, one thinks that in some such cases we will have inference without taking.

I said I was tempted to say that all adult human inference was the result of quick, more or less automatic processes that deliver beliefs that we (usually) can review and reject. But if we are tempted to say that this is what adult human inference is, shouldn't we be tempted to say that inference really hasn't much to do with taking a conclusion to follow from premises? Myself, I'm tempted to say it.

Lead us not, it will be pled, into temptation. Consider the case where, lounging in bed with you and hearing the patter of rain on the roof I: think *it is raining*; reflect *but if it is raining, I ought to wear galoshes when I leave*; and then find myself thinking *so I should wear galoshes; I wonder where they are*. In this case --and, it will be pled, surely

such a case is a paradigm of inference --it is *I* who is doing all the work: *I* consider the premises, *I* see that they imply the conclusion, *I* come to believe the conclusion because of my taking the one to support the other. That, after all, is the point of my thinking the *so*. In this sort of case, at least, inference is a transition from premises to conclusion that is brought about by taking the latter to be supported by the former. And in so far as this sort of example is paradigmatic, surely we have reason to say that the norm is that reasoning is a transition produced because one takes one thing to follow from others.²

But not very much follows from the claim that the example is a paradigm of reasoning. Jack's driving from Lowell to LA is a paradigm of a cross country trip; it is brought about by a belief that LA is the place to be. That doesn't mean it's essential to such journeys that they are produced by such beliefs. From the fact that paradigm Fs are Gs, it just doesn't follow that Fs are usually Gs or that the normal ones are.

Furthermore, one has to wonder whether in *normal* examples of inferring my conclusion from my premises --even in the example at hand --the inference occurs **because** I take the conclusion to be supported by the premises. What is obvious in the example is that:

- (a) I am aware of thinking p;
- (b) I am then aware of thinking that if p, then q;
- (c) I am then aware of thinking that q follows and of accepting q.

It does not follow from the fact that this is what happened that the second part of (c) occurred *because* the first part did. The acceptance of q, after all, could have been brought about by underlying processes that were fast, automatic, and below conscious

² Paul Boghossian makes much of examples like these (in, for example, Boghossian 2014) as a prolegomenon to characterizing inference as requiring some kind of *taking to support*. He does not endorse the (transparently bad) sort of argument in this paragraph. But it seems fair to say that he does presuppose that what such example raise to salience is essential to inference.

perusal; the thought that q followed from the rest might be simply a matter of the my consciously endorsing something that had already occurred.

Whether or not we think this is the right thing to say about the example under discussion, there is a more significant point to be made about it: the example of you and me and rain on the roof is in important ways **abnormal**. **Normally**, when I engage in the sort of reasoning that occurs in this example I have no conscious awareness of the premises from which I undoubtedly reason: I hear the patter of the rain and find myself thinking *merde, je dois de porter galoches*. In such examples there isn't anything we are aware of that corresponds to an event that is both a taking of one thing to follow from others and that causes the fixation of a belief. The fact that we aren't aware of such an event in normal reasoning does not, of course, entail that there is no such event. But one wonders what explanatory role positing such an event would serve.

Someone might observe that a normal adult human is disposed, when they have a conditional as a background belief and accept its antecedent, to think that the consequent is true because it is supported by what they accept. They might say that having this disposition is one way to believe that the conditional and its antecedent support the consequent. But if this is so and the disposition causes one to accept the consequent, then, it might be said, one's accepting the consequent *is* caused by taking the p and the *if p then q* to support q .³

Even if we agree with this last claim, nothing interesting follows about whether taking q to follow from p is required in order to infer q from p . Compare the adult who infers in a modus ponens way with a seven year old who makes the same transitions in thought, but lacks the concept of one thing being a reason for another. There seems to be no reason to think that the same mechanisms couldn't underlie both the adult's and seven year old's abilities to go from p and *if p then q* to q . Given that the underlying mechanisms are more or the less the same, most of us are inclined to say that seven year

³ This story is not open to Boghossian, who resists identifying beliefs with dispositions.

old is reasoning.⁴ But in the seven year old the mechanisms do not realize the belief, that p and *if p then q* provide reason for thinking q . At least they do not if having this belief requires having the concept of the relation *x is reason to think y* , for the seven year old lacks the concept. But the seven year old is making the same inference and making it in the same way as the adult. So given that it is reasonable that

X's believes that a Rs b

requires that

X is able to conceptualize the relation R,

it is not part of making an inference that one believe its premises support its conclusion, much less that such a belief explains or brings about the fact that the reasoner accepts the conclusion. But it *is* plausible that believing p requiring being able to conceptualize the relations involved in p . So we should conclude that even in the case of the adult, taking the conclusion to follow from the premises is no part of the inference.⁵

Perhaps you are inclined to reject the idea that believing that ...X... requires having the concept X . Or perhaps you think that the child's being wired in such a way that she makes modus ponens transitions in thought means that the child does indeed have the concept of following from, even if she doesn't yet have a word for the concept. If you have the inclination or the thought, you might then argue that: (a) in reasoning one is caused to accept a conclusion by a state that links premises and conclusion in the way the child's and the adult's states link their conclusions with their premises; (b) such a linking state is to be identified with "taking" the conclusion to follow from the premises,

⁴ Perhaps you feel we should deny that the seven year old can make *any* inferences if he lacks the concept. I'll discuss this response in the next section.

⁵ The general point here is that a dispositional state of type T may be a "part" of an inferential process and be a state of believing p without the fact, that it has the later property, entering into an account of what it is that the disposition contributes to making the process a process of inference.

or with one's "following a rule" that dictates drawing the conclusion from the premises; but (c) if reasoning involves 'taking' or rule following, it is agential.⁶

Such a view marks a significant retreat from the idea that reasoning involves an interesting sort of agency. One wonders how the "agency" involved in reasoning is supposed to come to more than one's being wired in such a way that one is disposed to undergo certain transitions in thought. One thinks that such wiring needn't be accompanied by anything like control by "the agent" of the process of reasoning. At least it needn't be accompanied by anything over and above the sort of control that a computer science major gives a computer when she writes and implements a learning algorithm that allows the computer to analyze data and combine the results of the analysis with information it already has.⁷

Some may be inclined to say that the cases of inference that ought to be the focus of philosophical investigation are not those I am calling normal examples of the rain inference, but the cases I've called abnormal, in which all premises are present to the mind and the agent does something like think to herself *sotto mentis voce* 'and so it follows'. After all, the philosopher is presumably interested in inference as an instrument of inquiry. But it is *this* sort of case, in which justification for believing is transparently

⁶ John Broome (2017) endorses something like this view. He suggests that in reasoning that leads to belief, it is necessary that one at least implicitly believe a conditional that "links" premises and conclusion. This is because one can't be following a rule in reasoning if one doesn't have such a belief (and, Broome says), rule following is "essential" to reasoning.

Broome however qualifies this: he thinks that beliefs are bundles of dispositions, and allows that one might not "have enough of the dispositions that constitute a typical belief to count as having a linking belief". The final position seems to be that in reasoning one must have at least a disposition to move from premises to conclusion, one that can reasonably be identified as rule following.

⁷ Thanks here to the editors for their comments and for their directing me to Broome's essay.

In the remainder of this essay, I presuppose that in cases like that of the seven year old, the (putative) reasoner does not have such concepts as *follows from*, *provides support for*, *gives reason to think*, or *justifies*, and thus that in such cases the (putative) reasoner does not satisfy any version of the 'taking' condition that is stronger than one on which to take *q* to follow from *p* is simply to think *if p, then q*.

transmitted from premises to conclusion by the process of inference, in which the epistemic role of inference is most obvious.

If we had reason to think that it was only in such explicit cases that justification could be transmitted from premises to conclusion, then perhaps we could agree that such cases should be given prize of place. But we have no reason to think that. I see a face; I immediately think *that's Paul*. My perceptual experience --which I would take to be a belief or at least a belief-like state that I see a person who looks *so* --justifies my belief that I see Paul. It is implausible that in order for justification to be transmitted I must take the one to justify the other. For that matter, the seven year old comes to be justified in *q* on reaching it in a modus ponensy way. Fast, automatic processes are a way --one of the primary ways --that we increase our knowledge of the world. The assumption that inference is interesting because it is an engine of the epistemic gives us no reason at all to think that there is anything of special philosophical interest in cases of inference in which something like taking occurs.

3. One might concede most of what I have said but still insist that reasoning is of necessity agential. Return to the contrast between the adult and the seven year old, who both think *p*, then *if p, then q*, and then *q*. The contrast was in the fact that the adult's thinking *q* was accompanied by the thought that it followed from the rest while the seven year old's was not. It is open to us say that *it is this thought that constitutes the inference*, even if the thought *q* did not occur *because* of the thought that one thing follows from another. The thought about following, one might say, is the crucial sign that the agent is monitoring the process of moving from premises to conclusion, ready to intervene if something goes awry. She is thus in some sense in charge of the process.

Let us say that a cognitive process is one of belief-fixation provided that (part of) its functional role is to produce new states of acceptance on the basis of already existing states of acceptance. On the view just limned, one infers *q* from some premises iff one moves *via* processes of belief-fixation from the premises to *q* **and** one takes *q* (usually after the fact) to follow from those premises.

If we endorse such a view, we will have to say that the child did not infer the conclusion from the premises; indeed, we will have to say that the child was not reasoning, since (lacking the concept of one thing supporting another) the child *could not* reason. The child, on this view, is like many higher non-human animals that are capable of forming new beliefs on the basis of old ones in a reliable way. What the child is unable to do is to understand what it is doing; unable to understand what it is doing, it has little or no control over the processes that fix its beliefs. Not being in any interesting sense master of its epistemic domain, it is thus the sort of thing that is unable to reason.

The proponent of this view might, in a concessive move, grant that ordinary people, cognitive scientists, and ethologists *use* the term ‘reasoning’ in such a way that what the seven year old does counts under their usage as reasoning. Ditto, for what the dog, the fox, the eagle, and the lynx do, when they are working at their cognitive apex. The proponent might agree that it would be useful to have a term for what is common to the processes that underlie belief fixation in both *homo*, *animal rationale* and the cognitively deprived child and animal. Perhaps we could appropriate the word ‘reckon’ for the task, and say that while both the child and adult reckoned that *q* on the basis of other beliefs, only the adult inferred *q* therefrom.

This is not an absurd view. But it seems willful to hold that the child or the dog is incapable of knowing that the fox is chasing a chicken or of having standing knowledge that when a fox is chasing a chicken he will catch it. So one wants to know whether for such creatures reckoning is a means of moving from knowledge to new knowledge. If, as seems reasonable, it is allowed that it is, the view seems to make the question --*what is reasoning?* --less interesting than it might otherwise have been thought. After all, it is the process of reckoning (which is common to the child, the dog, and the adult) that carries each from her beliefs, that the fox is chasing the chicken and that if it is, it will catch it, to her belief that the fox will catch the chicken. But then it is not clear how much --if anything --the adult’s *reasoning* is adding in such cases to the adult’s expansion of her knowledge. The child and the dog come to have new knowledge simply on the

basis of reckoning to it. Wouldn't the adult have known this if she had just reckoned that the fox's lunch would soon be had?

Inference, on the view we are considering, turns out to be a mark of a quality control process present only in the most highly evolved animals. It is a useful and important process, of course, but one that is at best secondary to the processes, like reckoning, that are the workhorses of the epistemic --the processes that are responsible for most of the beliefs and most of the knowledge that we have of the world. We should be interested in it. But it is not really where the action is, epistemically.

Myself, I wouldn't endorse this view. We ought to agree that adult inferential activity is pretty much continuous with the cognitive activity of toddlers, infants, and higher non-human mammals. Of course toddlers lack the concept of consequence, infants are probably not subpersonally up to *modus ponens*, and bonobo beliefs may not even be conscious. But in all four cases we (presumably) find mechanisms that take occurrent beliefs as input, access standing beliefs, and then regularly and in a reliably predictable way produce new beliefs. To the extent that the output of such mechanisms is (more or less) predictable on the basis of the input, such mechanisms will make the individual's information processing behavior look like the behavior of someone who is being "guided by a rule." But of course there is a great deal of fast, automatic, non-agential behavior in the animal world that *looks* like the behavior of someone who is being guided by a rule.

Are all four of us --adult, toddler, infant, bonobo --reasoning? If this is a question about ordinary usage or a philosopher's question about the analysis of "our concept of reasoning", it doesn't strike me as terribly interesting. I'd go with ordinary usage myself, but it's hard to believe that anything of substance hangs on the decision.

There are, though, interesting questions to ask about what (we should expect) is and is not continuous across the cases. All have (varying degrees of) the ability to change their inferential patterns on the basis of experience. The infant and the bonobo

presumably lack the ability to review and revise the output of the underlying mechanisms, the toddler is only beginning to develop such an ability. Presumably only the adult has the ability to conceptualize her inferences as such and to ask questions as to whether what she now believes follows from what led her to the belief. The interesting questions have to do with commonalities across cases and with how learning might affect the mechanisms that underlie inference in various kinds of cognitive systems. So, anyway, I reckon.

4. I started with the question of whether to reason is do something, and thus to act as an agent. A reason to think so --*the* reason, as I see it --is that we hold reasoners responsible for both the product and the process of their reasoning; but responsibility is a mark of agency. I've argued that our holding the reasoner responsible for his reasoning doesn't imply that reasoning *per se* involves a particularly interesting sort of agency. When I move abductively from *the light won't go on* to *I probably pulled the wire out of the fixture changing the bulb* I "do" something in the sense in which I am doing something when, after having an egg thrown in my face, I refrain from wiping it away. In the latter case, I am put in a position where I will have egg on my face if I don't do something; my refraining from wiping, since I could wipe, is my doing something which results in leaving egg on my face. If you are embarrassed by my messy face, you are within your rights to hold me responsible for not cleaning myself up. In inference, I am put in a position of having a belief; my refraining from reconsidering, since I could reconsider, is my doing something --refraining from doing certain things --and thereby maintaining a new belief.⁸ You can criticize me for my inaction if the inference was a howler.

⁸ The situation here is very much like perceptually formed belief. The visual system offers something like an iconic hypothesis about the lay of the visible land; it is up to us to accept its offer. ("It *looks* like a turkey with a halo, but that can't be right...") The picture I am suggesting, for both visual system and inference, is one rooted in the idea that evolution starts with the visual systems and System 1 mechanisms of mammals from which we are descended. It then (somehow....) manages to layer on top the human personal system, which has the ability to override attempts by the other systems to insert representations into a position in one's functional economy from which they can control behavior.

To ask whether reasoning is a form of agency is not to ask what it is to reason, and the latter is not a question I have tried to answer. But I should say something about the latter question. It is best, perhaps, to start with concrete cases. The example in the last paragraph, where I infer that I probably pulled the wire out of the fixture, has two moments: there is the transition, largely outside consciousness, from the lack of light to the conclusion; and there is my refraining from rejecting the conclusion when it comes upon me. With what should we identify the inference: the first moment, the first and second, just the second, or with yet something else?

My current inclination is to identify it just with something that occurs during the first moment.⁹ I'm so inclined simply because I think what the dog, the fox, the eagle, and the lynx do, when they are working at their cognitive apex, is often making inferences; but I somehow doubt that they exercise the sort of cognitive control over their information processing that is involved in the second moment of the example above. That an animal or a person does not reject a belief does not imply that it was up to him as to whether to reject it. The same sort of thing, I think, may well be true of many of the inferences we draw as a result of bias when the conclusions of those inferences are not available to consciousness. Myself, I think we have many beliefs that we are not only unaware of but that we can become aware of only through being helped to see their effects in how we behave; some of these, I think, arise through inference. He who is biased against a racial group, I think, believes that they merit certain sorts of treatment; he may be utterly unaware of his bias. Such a person, noticing that someone is a member of the group, will come to think that the person merits the relevant sort of treatment. It is, in my opinion, over-intellectualized fastidiousness to suggest that the later belief is not the result of inference. Of course to say this is not to answer the question of what might make the first moment in the example above an inference.

⁹ Susanna Siegel in her contribution to this volume (Siegel 2017) gives a somewhat different reason for thinking that the second moment in the example is not essential to inference than the one I am about to give.

What is inference? I am inclined to think that asking that question, at least at the moment, is something of a mistake. We have a fairly good handle on what human behavior counts as paradigmatic inference, as well as a tolerable handle on what behavior is paradigmatically not inference. We have something of a handle on what behavior is problematic in this regard. I should think that the thing to do for the moment is to look closely at what we think we know about the paradigms and the processes that underlie them and see to what extent they have something in common, to what extent they form not a single kind but a family. Then, but only then, we might be in a position to see whether the question has an illuminating answer.¹⁰

Boghossian, P. 2014. What is Inference? *Philosophical Studies* 169, 1-18.

Broome, J. 2017. A Linking Belief is not Essential for Reasoning. This volume.

Siegel, S. 2017. [Contribution to this volume]

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