INFERENTIAL AND NON-INFERENTIAL REASONING

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Abstract:

It is sometimes suggested that there are two kinds of reasoning: inferential reasoning and non-inferential reasoning. However, it is not entirely clear what the difference between these two kinds of reasoning is. In this paper, I try to answer the question what this difference is. I first discuss three answers to this question that I argue are unsatisfactory. I then give a different answer to this question, and I argue that this answer is satisfactory. I end by showing that this answer can help to resolve some disagreements in which the difference between inferential and non-inferential reasoning plays a role.

INFERENTIAL AND NON-INFERENTIAL REASONING

It is sometimes suggested that there are two kinds of reasoning: inferential reasoning and non-inferential reasoning. However, it is not entirely clear what the difference between these two kinds of reasoning is. Therefore, in this paper, I shall try to answer the following question:

(Q)   What is the difference between inferential and non-inferential reasoning?

I shall first discuss three answers to this question that I shall argue are unsatisfactory. I shall then give a different answer to this question, and I shall argue that this answer is satisfactory.

This paper consists of nine sections. In section 1, I explain what I take reasoning to be, and I give some examples of processes of reasoning that are clearly inferential or clearly non-inferential. In section 2, I discuss some disagreements in ethics and epistemology in which the difference between inferential and non-inferential reasoning plays a role. In sections 3 to 5, I discuss three answers to (Q) that I argue are unsatisfactory. In section 6, I give a different answer to (Q), and in sections 7 and 8, I argue that this answer is satisfactory. In section 9, I show that this answer can help to resolve the disagreements in which the difference between these two kinds of reasoning plays a role.

1. Examples of inferential and non-inferential reasoning

I take reasoning to be the rational expansion, revision or contraction of a person's intentional attitudes, such as a person's beliefs, intentions or desires.[1] I shall represent processes of

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[1] I shall say more about what it is for an expansion, revision or contraction of a person's attitudes to be rational in section 6. Influential work on what I am here calling 'reasoning' includes Levi 1980 and

reasoning as sequences that start with some of a person's existing attitudes and that end with the word 'so' followed by a new attitude, such as:

> (Belief:) p.
> (Belief:) q.
> So, (Belief:) r.[2]

Though this way of representing processes of reasoning may suggest otherwise, I take it that reasoning does not have to be a fully conscious process.

Some philosophers use the term 'reasoning' to refer only to what I shall call inferential reasoning. This use of the term 'reasoning' is narrower than mine, since it does not cover what I shall call non-inferential reasoning. Other philosophers use the term 'inference' to refer to any rational expansion, revision or contraction of a person's intentional attitudes. This use of the term 'inference' is broader than my use of the term 'inferential', since it covers both what I shall call inferential reasoning and what I shall call non-inferential reasoning.

Though it is not entirely clear what the difference between inferential and non-inferential reasoning is, it is possible to give examples of processes of reasoning that are clearly inferential or clearly non-inferential. An example of a process of reasoning that is clearly inferential is:

1991, Harman 1986, Gärdenfors 1988, and Broome 2001 and 2002. It is often claimed that reasoning can also result in an action, and Knorpp 1997 claims that there can also be reasoning without a resulting expansion, revision or contraction of a person's attitudes. I shall ignore these claims in what follows.

[2] For a similar way to represent processes of reasoning, see Broome 1999, 2001 and 2002. Though reasoning that results in modification or expansion of a person's attitudes can be represented in this way, it is less clear how to represent reasoning that results in contraction of a person's attitudes (that is, reasoning that results in a person's giving up of one or more of his or her attitudes). Perhaps this can be done by introducing conclusions of the form '(Not belief:) r'. I shall ignore this problem in what follows.

(Belief:) If it is going to rain, the streets will get wet.

(Belief:) It is going to rain.

So, (Belief:) The streets will get wet.

When I say that this process is clearly inferential, I mean that almost all philosophers who suggest that there is a difference between inferential and non-inferential reasoning would say that this process of reasoning is inferential.[3]

An example of a process of reasoning that is clearly non-inferential is:

(Belief:) The weather forecast predicts rain.

(Belief:) The sky is full of clouds.

So, (Belief:) There are reasons to believe that it is going to rain.[4]

When I say that this process is clearly non-inferential, I mean that almost all philosophers who suggest that there is a difference between inferential and non-inferential reasoning would say that this process of reasoning is non-inferential.[5]

There are also processes of reasoning that are neither clearly inferential nor clearly non-inferential. Some examples of such processes of reasoning are:

(Belief:) The weather forecast predicts rain.

(Belief:) The sky is full of clouds.

So, (Belief:) It is probably going to rain.

(Belief:) The streets are wet.

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[3] However, philosophers who use the term 'reasoning' to mean what I call inferential reasoning would simply say that this is a process of reasoning.

[4] I use the term 'reason' to mean *pro tanto* normative reason. I shall say more about this use of the term 'reason' in section 6.

[5] However, philosophers who use the term 'reasoning' to mean what I call inferential reasoning would deny that this is a process of reasoning.

(Belief:) People are putting away their umbrellas.

So, (Belief:) It has probably just stopped raining.

(Intention:) I shall stay dry.

(Belief:) If I take an umbrella, I will stay dry.

So, (Intention:) I shall take an umbrella.

When I say that these processes are neither clearly inferential nor clearly non-inferential, I mean that philosophers who suggest that there is a difference between inferential and non-inferential reasoning would disagree about whether these processes of reasoning are inferential or non-inferential.[6]

This gives us a rough idea of what the difference between inferential and non-inferential reasoning may be. Of course, to get a more precise idea of what this difference is, we will of course have to answer (Q).

2. Disagreements in ethics and epistemology

Before I shall try to answer (Q), however, I shall discuss some disagreements in ethics and epistemology in which the difference between inferential and non-inferential reasoning plays a role.

In ethics, several philosophers claim that

(1)   Moral reasoning is non-inferential.[7]

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[6] Moreover, some philosophers seem to think that the expansion, revision or contraction of a person's intentional attitudes can only be rational if these attitudes are beliefs, and would therefore probably deny that the third example is a process of reasoning. Hampton 1995 and Millgram 1995 suggest that this was Hume's view. In what follows, I shall ignore this view.

[7] See, for example, Prichard 1912, Ross 1930, McNaughton 1988 and 2000, and Dancy 1991 and 1993.

These philosophers are intuitionists, who think that there are self-evident propositions about which actions we have an obligation to perform, and that we can acquire knowledge of these propositions by going through processes of non-inferential reasoning.[8] Some intuitionists go even further than this, and claim that

(2)   All practical reasoning is non-inferential.[9]

Since moral reasoning is a form of practical reasoning, besides endorsing (2), these intuitionists also endorse (1).[10]

Other philosophers reject (1) and (2), and claim that

(3)   Most moral reasoning is inferential.

For example, many utilitarians think that we can come to know non-inferentially that

(4)   We have a moral obligation to perform those actions that will maximize overall utility,

and that we can reach more specific conclusions about which actions we have an obligation to perform by going through processes of inferential reasoning that combine (4) with

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[8] See Prichard 1912, 16, and Ross 1930, 30. For discussion, see Audi 2004, 5-79. Prichard seems to have thought that we can *only* come to have knowledge of these self-evident propositions by going through processes of non-inferential reasoning. However, as Philip Stratton-Lake points out in his introduction to the 2002 edition of Ross 1930, xlviii-xlix, this does not seem to have been Ross's view.

[9] See Dancy 2003, 277-8, and Dancy 2004, 101-8. Nagel 1970, 21, claims that the premises of a process of practical reasoning do not entail its conclusion, and that practical reasoning involves "no entailment, but only a requirement of a different kind". This claim is related to (2), since reasoning that involves entailment is often inferential, as will become clear in sections 6 to 8.

[10] See Dancy 2003, 277-8, and Dancy 2004, 101-8.

descriptive premises.[11] And some Kantians think that we can come to know non-inferentially that

> (5)   We have a moral obligation to act in such a way that we never treat our own or other people's humanity merely as a means, but always at the same time as an end,

and that we can reach more specific conclusions about which actions we have an obligation to perform by going through processes of inferential reasoning that combine (5) with descriptive premises.[12]

In epistemology, several philosophers claim that

> (6)   There is a distinction between basic and non-basic knowledge.
> (7)   We only have non-basic knowledge if we can acquire this knowledge by going through a process of inferential reasoning that starts from our basic knowledge.

These philosophers are foundationalists, who think that basic knowledge provides a foundation for all other knowledge.[13]

Other philosophers reject (6), and claim that

> (8)   There is no distinction between basic and non-basic knowledge.

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[11] See, for example, Sidgwick 1907, 379-89.

[12] See, for example, Audi 2004. Audi's view combines Kantianism with intuitionism: he thinks that the conclusions we can reach through processes of inferential reasoning that combine (5) with descriptive premises can also be reached by going through processes of non-inferential reasoning.

[13] For defences of foundationalism, see, for example, Russell 1948, Chisholm 1989, Moser 1989 and BonJour 1999. Different foundationalists endorse different versions of (7).

These philosophers are coherentists, who deny that knowledge needs such a foundation.[14] Because coherentists reject (6), they reject (7) as well.

There is also a disagreement in epistemology about how we acquire knowledge through sense-perception. Some philosophers seem to think that

(9)   We acquire knowledge through sense-perception by going through processes of inferential reasoning.[15]

Other philosophers reject (9), and instead claim that

(10)   We acquire knowledge through sense-perception by going through processes of non-inferential reasoning,[16]

or that

(11)   We acquire knowledge through sense-perception without going through any processes of reasoning at all.

Philosophers who endorse (11) often claim that sense-perception gives rise to knowledge by causing the beliefs that this knowledge consists in.[17]

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[14] For defences of coherentism, see, for example, Sellars 1963, 127-196, Davidson 1983, BonJour 1985, and Lehrer 1990.

[15] See, for example, Russell 1912, 3-4, and 1948, 221-2 and 341-2, and Harman 1973, 173-88. Russell and Harman make this claim about inference, and it is not entirely clear whether what they mean by 'inference' is what I call inferential reasoning or is instead reasoning in general. If they mean reasoning in general, they may endorse (10) rather than (9).

[16] See, for example, Adams 1999, 357-9, who suggests that we form beliefs on the basis of sense-perception through what he calls a non-inferential doxastic process.

[17] See, for example, Davidson 1983, 143, and Pollock and Cruz 1999, 74. Many philosophers who discuss this disagreement think that using the term 'inference' with regard to perception is unclear or misleading. See, for example, Chisholm 1957, 158-9, Armstrong 1961, 20-1, Jackson 1977, 7-11, and

Clearly, one thing we need in order to resolve these disagreements is a satisfactory answer to (Q). As Jonathan Dancy writes, in trying to resolve these disagreements "we are hampered by the fact that nobody has been able to produce a criterion for distinguishing the inferential from the non-inferential".[18] In the next four sections, I shall try to produce such a criterion.

3. First answer: premises and lack of premises

A satisfactory answer to (Q) should, I think, meet the following two conditions:

(i)   It should give a correct, informative and unified account of the difference between processes of reasoning that are clearly inferential and processes of reasoning that are clearly non-inferential.

(ii)   It should make sense of the existence of disagreements in ethics and epistemology in which the difference between inferential and non-inferential reasoning plays a role.

In this section and the next two sections, I shall discuss three answers to (Q) that I shall argue fail to meet these conditions. Though these answers are therefore unsatisfactory, discussing them will help us to give an answer to (Q) that is satisfactory.

The first answer to (Q) that I shall discuss is:

(A_1)   Inferential reasoning is reasoning that is based on premises, and non-inferential reasoning is reasoning that is not based on premises.[19]

Martin 1993, 86.

[18] Dancy 2004, 102.

[19] The term 'premises' can be used to refer either to the attitudes that a process of reasoning starts with or to the contents of these attitudes, and the term 'conclusion' can be used to refer either to the attitude that a process of reasoning ends with or to the content of this attitude. In what follows, I shall

This answer is suggested by Robert Audi, who distinguishes "two concepts of reasoning to a conclusion", and who writes:

> One kind of reasoning is premise-based, and its conclusion is inferentially grounded on its premises. The other is non-linear and in a certain way global. It yields conclusions based on reflection rather than inference.[20]

Since (A_1) says that non-inferential reasoning is not based on premises, it seems to say that processes of non-inferential reasoning consist only of a conclusion. If so, such processes of reasoning can perhaps be represented as:

(Belief:) p.

Or, since Audi claims that the conclusions of processes of non-inferential reasoning are based on reflection, such processes can perhaps be represented as:

(Reflection.)
So, (Belief:) p.

However, consider the following process of reasoning:

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use these terms in both of these ways.

[20] Audi 2004, 198 (see also 45-6). Audi also writes that intuitionists think that moral intuitions are "non-inferential, in the sense that the intuited proposition in question is not – at the time it is intuitively held – believed on the basis of a premise" (2004a, 33). Somewhat similar claims are made by Adams 1999, 357-8, who writes that doxastic practices, which always have beliefs as their outputs, are inferential if their inputs are also beliefs and non-inferential if their inputs are not beliefs but are instead sensations, feelings, emotions, inclinations, or desires. Adams is here following Alston 1991, but Alston uses the terms 'transformational' and 'generational' instead of 'inferential' and 'non-inferential'.

(Belief:) The weather forecast predicts rain.

(Belief:) The sky is full of clouds.

So, (Belief:) There are reasons to believe that it is going to rain.

Since this process of reasoning seems to have premises, (A₁) seems to say that it is inferential. But, as I said in section 1, this process of reasoning is clearly non-inferential. Therefore, (A₁) does not seem to classify it correctly.

Moreover, though this process of reasoning seems to have premises, (A₁) does not say what distinguishes the premises of a process of reasoning from the other attitudes that a person has. We may think that what distinguishes the premises of a process of reasoning from a person's other attitudes is the premises' relation to the conclusion of this process. However, (A₁) does not say what this relation is. Therefore, in addition to seeming to classify this process of reasoning incorrectly, (A₁) is also insufficiently informative.

Besides writing that inferential reasoning is "premise-based", Audi also writes that a conclusion of inference is "premised on propositions noted as evidence",[21] and that we can derive a proposition from other propositions by "deduction" or by a "plausibility argument".[22] This suggests the following elaboration of (A₁):

(A₁*)   Inferential reasoning is reasoning that is based on premises that are evidence for its conclusion, that entail its conclusion, or that make its conclusion plausible, and non-inferential reasoning is reasoning that is not based on premises.

However, consider again the following process of reasoning:

(Belief:) The weather forecast predicts rain.

(Belief:) The sky is full of clouds.

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[21] Audi 2004, 45.

[22] Audi 2004, 110.

So, (Belief:) There are reasons to believe that it is going to rain.

Since the premises of this process clearly make its conclusion plausible, (A₁*) says that this process of reasoning is inferential. But this process of reasoning is clearly non-inferential. Therefore, (A₁*) does not classify it correctly.

Moreover, (A₁*) says that the premises of a process of inferential reasoning are either evidence for its conclusion, or entail its conclusion, or make its conclusion plausible. It does not say what these different kinds of inferential reasoning have in common. Therefore, in addition to classifying this process of reasoning incorrectly, (A₁*) is also insufficiently unified.

I conclude that neither (A₁) nor (A₁*) meets condition (i), and that therefore neither (A₁) nor (A₁*) is a satisfactory answer to (Q).

4. Second answer: monotonicity and non-monotonicity

Consider again the following process of reasoning, of which I said in section 1 that it is clearly non-inferential:

(Belief:) The weather forecast predicts rain.
(Belief:) The sky is full of clouds.
So, (Belief:) There are reasons to believe that it is going to rain.

Suppose that a person who goes through this process of reasoning also has the following two beliefs:

(Belief:) The weather forecast is usually wrong.
(Belief:) The clouds are very thin.

These beliefs undercut the support that the premises of this process give to its conclusion. Now compare this process of reasoning to the following process of reasoning, of which I said

that it is clearly inferential:

(Belief:) If it is going to rain, the streets will get wet.

(Belief:) It is going to rain.

So, (Belief:) The streets will get wet.

No matter which other beliefs a person who goes through this process has, none of these beliefs can undercut the support that the premises of this process give to its conclusion. In other words, whereas the first process of reasoning is non-monotonic, the second process of reasoning is monotonic. This may suggest the following answer to (Q):

(A_2)   Inferential reasoning is reasoning that is monotonic, and non-inferential reasoning is reasoning that is non-monotonic.

This answer is an improvement on (A_1) and (A_1*), since unlike (A_1) and (A_1*), it correctly classifies the first process of reasoning as non-inferential.

However, suppose that a person who goes through this process of reasoning does not believe that the weather forecast is usually wrong and that the clouds are very thin, but instead has the following three beliefs:

(Belief:) If the weather forecast predicts rain, it is going to rain.

(Belief:) If the sky is full of clouds, it is going to rain.

(Belief:) If it is going to rain, there are reasons to believe that it is going to rain.

If we add these beliefs to the premises of this process of reasoning, we get the following expanded process of reasoning:

(Belief:) The weather forecast predicts rain.

(Belief:) The sky is full of clouds.

(Belief:) If the weather forecast predicts rain, it is going to rain.

(Belief:) If the sky is full of clouds, it is going to rain.

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(Belief:) If it is going to rain, there are reasons to believe that it is going to rain.

So, (Belief:) There are reasons to believe that it is going to rain.

No matter which other beliefs this person has, none of these beliefs can undercut the support that the premises of this process give to its conclusion. In other words, this expanded process of reasoning is monotonic. Therefore, (A₂) says that this process is inferential.

However, the three premises that we added to the original process of reasoning do not undercut the support that the original two premises give to the conclusion of this process. It therefore seems that adding these premises should not turn this process of reasoning from a non-inferential one into an inferential one. At most, it seems, adding these extra premises should turn this process of reasoning into a process that is neither clearly inferential nor clearly non-inferential. Therefore, (A₂) does not seem to classify this process of reasoning correctly.

Moreover, consider the disagreement in ethics about whether it is true that

(2)   All practical reasoning is non-inferential.

And consider the following process of reasoning:

(Intention:) If it is going to rain, I shall take an umbrella.
(Belief:) It is going to rain.
So, (Intention:) I shall take an umbrella.

On almost any view about practical reasoning, this process of reasoning is practical.[23] But this process is also clearly monotonic. Therefore, if (A₂) were correct, it would be obvious that (2) is false, which would make it surprising that there is a disagreement in ethics about

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[23] The main exception to this is the view that practical reasoning always results in an action. It is often claimed that Aristotle held this view, but it is doubtful whether he actually did (see Charles 1984, 94).

whether (2) is true.

Or consider the disagreement in epistemology about whether it is true that

(7)   We only have non-basic knowledge if we can acquire this knowledge by going through a process of inferential reasoning that starts from our basic knowledge.

If (7) were true and if (A_2) were correct, we would only have non-basic knowledge if we could acquire this knowledge by going through a process of monotonic reasoning that starts from our basic knowledge. In that case, on almost any account of basic knowledge, we would have very little non-basic knowledge. Therefore, if (A_2) were correct, it would be obvious that (7) is false, which would make it surprising that there is a disagreement in epistemology about whether (7) is true.[24]

I conclude that (A_2) meets neither condition (i) nor condition (ii), and that (A_2) is therefore not a satisfactory answer to (Q) either.

5. Third answer: descriptive conclusion and normative conclusion

Consider again the following process of reasoning, of which I said that it is clearly inferential:

(Belief:) If it is going to rain, the streets will get wet.
(Belief:) It is going to rain.
So, (Belief:) The streets will get wet.

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[24]At least, it would be obvious that (7) is false to anyone who is not a sceptic about the knowledge that those who endorse (6) call non-basic. Strictly speaking, if (A_2) were correct, it would be surprising that there is a disagreement about whether (7) is true between philosophers who are not sceptics about this knowledge.

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And compare this process once again to the following process of reasoning, of which I said that it is clearly non-inferential:

>   (Belief:) The weather forecast predicts rain.
>   (Belief:) The sky is full of clouds.
>   So, (Belief:) There are reasons to believe that it is going to rain.

Whereas the first process of reasoning has a descriptive conclusion, the second process of reasoning has a conclusion about reasons, which is a normative conclusion.[25] This may suggest the following answer to (Q):

>   (A₃)   Inferential reasoning is reasoning that has a descriptive conclusion, and non-inferential reasoning is reasoning that has a normative conclusion.

Like (A₂), this answer is an improvement on (A₁) and (A₁*), since unlike (A₁) and (A₁*), it correctly classifies the second process of reasoning as non-inferential.

However, consider the following process of reasoning:

>   (Belief:) If it is going to rain, there is a reason to believe that the streets will get wet.
>   (Belief:) It is going to rain.
>   So, (Belief:) There is a reason to believe that the streets will get wet.

Since this process of reasoning has a normative conclusion, (A₃) says that it is non-inferential. But the form of this process of reasoning can be represented as:

>   (Belief:) $p \supset q$.

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[25] Those who do not want to call propositions about reasons for belief normative could reformulate (A₃) as: inferential reasoning is reasoning that has a conclusion that is not about reasons, and non-inferential reasoning is reasoning that has a conclusion that is about reasons.

(Belief:) *p*.

So, (Belief:) *q*.

Its form is therefore identical to the form of the following process of reasoning, of which I said that it is clearly inferential:

(Belief:) If it is going to rain, the streets will get wet.

(Belief:) It is going to rain.

So, (Belief:) The streets will get wet.

Since its form is identical to the form of a process of reasoning that is clearly inferential, it seems that this process of reasoning is inferential rather than non-inferential. At most, it seems, having the same form as a process of reasoning that is clearly inferential should make this process neither clearly inferential nor clearly non-inferential. Therefore, (A₃) does not seem to classify this process of reasoning correctly.

Moreover, consider the disagreement in ethics about whether it is true that

(1)   Moral reasoning is non-inferential.

On almost any view about moral reasoning, moral reasoning can have a normative conclusion, such as a conclusion about an obligation or about a moral reason. Therefore, if (A₃) were correct, it would be obvious that (1) is true, which would make it surprising that there is a disagreement in ethics about whether (1) is true.

I conclude that (A₃) meets neither condition (i) nor condition (ii), and that (A₃) is therefore not a satisfactory answer to (Q) either.

6. A different answer to (Q)

Since all of the answers to (Q) that I have discussed so far are unsatisfactory, we need to give a different answer to (Q). In this section, I shall try to give such an answer. In the next two

sections, I shall argue that this answer is satisfactory.

As I said in section 1, I take reasoning to be the rational modification, expansion or contraction of a person's intentional attitudes. More exactly, I think that

(12)   Reasoning is the modification, expansion or contraction of a person's intentional attitudes in response to reasons.

I use the term 'reason' in (12) to mean *pro tanto* normative reason.[26] If the term 'reason' is used in this way, the claim that

(13)   There is a reason to φ

is equivalent to claim that

(13')   There is a fact that counts in favour of φ-ing.[27]

Each *pro tanto* normative reason has a certain weight, and there is most reason for a person to φ if and only if the reasons for this person to φ outweigh the reasons for this person not to φ.

Some philosophers who discuss reasoning or inference use the term 'reason' in a very different way. For example, Robert Brandom writes that "propositions are what can serve as premises and conclusions of inferences, that is, can serve as and stand in need of reasons", and that when we make something explicit, we put it "in a form in which it can both serve as and stand in need of reasons: a form in which it can serve as both premise and conclusion in inferences".[28] If the term 'reason' is used in this way, the claim that

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[26] The term 'reason' is used in this way by, for example, Parfit 1997, Scanlon 1998, Raz 1999, Audi 2004 and Dancy 2004. For a critical discussion of *pro tanto* normative reasons, see Broome 2004.

[27] I use 'φ' to cover performing an action, having or forming an intentional attitude, or going through a process of reasoning.

[28] Brandom 1994, xiv, and Brandom 2000, 11 (italics removed).

(14)   Proposition *p* is a reason for proposition *q*

is equivalent to the claim that

(14')   There is a valid or cogent inference from proposition *p* to proposition *q*.[29]

In what follows, I shall not use the term 'reason' in this way.

If (12) is correct, we can perhaps give a satisfactory answer to (Q) by looking at the reasons that processes of inferential and non-inferential reasoning are a response to. Consider again the following process of reasoning, of which I said that it is clearly non-inferential:

(Belief:) The weather forecast predicts rain.
(Belief:) The sky is full of clouds.
So, (Belief:) There are reasons to believe that it is going to rain.

It is plausible to suppose that the fact that the weather forecast predicts rain is a *pro tanto* normative reason to believe that it is going to rain, and that the fact that the sky is full of clouds is another *pro tanto* normative reason to believe that it is going to rain. This can be pictured as follows:

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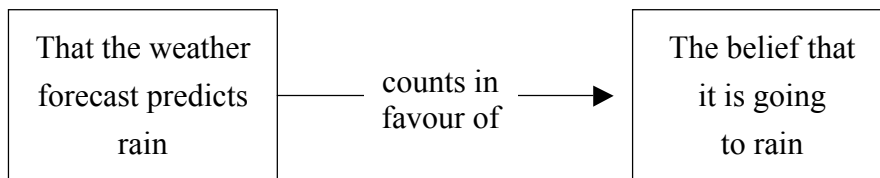
[29] Some philosophers who use the term 'reason' in this way suggest that this is the only correct use of the term. For example, Sellars 1975, 337, writes that "the concept of a *reason* seems so clearly tied to that of an *inference* or *argument* that the concept of non-inferential reasonableness seems to be a *contradictio in adjecto*". However, it is surely very implausible to claim that those who use the term 'reason' to mean *pro tanto* normative reason are using this term incorrectly.
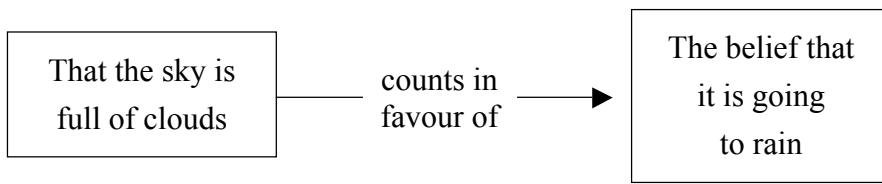
And it is plausible to suppose that this process of reasoning occurs in response to these two reasons.

Now consider again the following process of reasoning, of which I said that it is clearly inferential:

(Belief:) If it is going to rain, the streets will get wet.

(Belief:) It is going to rain.

So, (Belief:) The streets will get wet.

As we have seen, the form of this process of reasoning can be represented as:
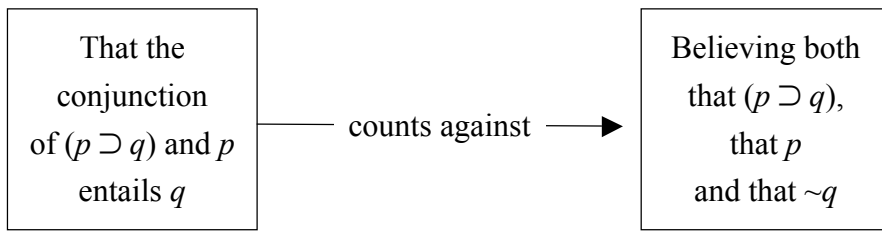
(Belief:) $p \supset q$.

(Belief:) p.

So, (Belief:) q.

It is plausible to suppose that the fact that the conjunction of ($p \supset q$) and p entails q is a *pro tanto* normative reason against believing both that ($p \supset q$), that p and that $\sim q$.[30] This can be pictured as follows:

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[30] I defend this claim in Streumer 2007.

That the conjunction of $(p \supset q)$ and p entails q	— counts against →	Believing both that $(p \supset q)$, that p and that $\sim q$

And it is plausible to suppose that this process of reasoning occurs in response to this reason.

There is a clear difference between these three reasons. The first two reasons are what we can call 'narrow-scope' reasons: they are reasons for or against a single intentional attitude or action. But the third reason is what we can call a 'wide-scope' reason: it is a reason for or against a combination of intentional attitudes or actions, rather than a reason for or against a single intentional attitude or action.[31] This may suggest the following answer to (Q):

> Inferential reasoning is reasoning that occurs in response to wide-scope reasons, and non-inferential reasoning is reasoning that occurs in response to narrow-scope reasons.

However, this answer cannot be correct. For consider once again this process of reasoning:

> (Belief:) If it is going to rain, the streets will get wet.
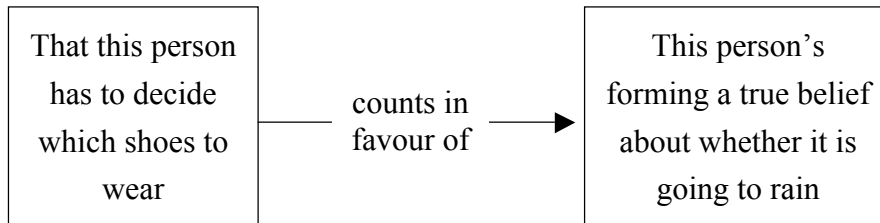> (Belief:) It is going to rain.
> So, (Belief:) The streets will get wet.

In addition to being a response to a wide-scope reason, this process may also be a response to

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[31] The distinction between narrow-scope and wide-scope reasons and 'oughts' was first made by Broome 1999 (though Broome calls wide-scope reasons 'normative recommendations' and wide-scope oughts 'normative requirements'). See also Broome 2001, 2002 and 2004. For critical discussions of wide-scope reasons and 'oughts', see Schroeder 2004 and Kolodny 2005.

one or more narrow-scope reasons, such as reasons to form a true belief about it conclusion. It may, for example, also be a response to the following reason:

| That this person has to decide which shoes to wear | counts in favour of → | This person's forming a true belief about whether it is going to rain |

Therefore, in addition to being a response to a wide-scope reason, processes of inferential reasoning can also be a response to narrow-scope reasons. By contrast, processes of non-inferential reasoning only seem to occur in response to narrow-scope reasons. This suggests the following answer to (Q):

(A$_4$)   Inferential reasoning is reasoning that occurs in response to at least one wide-scope reason, and non-inferential reasoning is reasoning that occurs only in response to narrow-scope reasons.

In the next two sections, I shall argue that this answer to (Q) is satisfactory.

7. How (A$_4$) meets condition (i)

I shall begin by arguing that (A$_4$) meets condition (i). In other words, I shall argue that it gives a correct, informative and unified account of the difference between processes of reasoning that are clearly inferential and processes of reasoning that are clearly non-inferential.

Consider first the process of reasoning that (A$_1$) and (A$_1$*) did not classify correctly, which was:

(Belief:) The weather forecast predicts rain.

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(Belief:) The sky is full of clouds.

So, (Belief:) There are reasons to believe that it is going to rain.

As we have seen in section 6, (A$_4$) classifies this process of reasoning correctly: it classifies it as non-inferential, since it is plausible to suppose that this process occurs only in response to narrow-scope reasons.

Consider next the process of reasoning that (A$_2$) did not classify correctly, which was:

(Belief:) The weather forecast predicts rain.

(Belief:) The sky is full of clouds.

(Belief:) If the weather forecast predicts rain, it is going to rain.

(Belief:) If the sky is full of clouds, it is going to rain.

(Belief:) If it is going to rain, there are reasons to believe that it is going to rain.

So, (Belief:) There are reasons to believe that it is going to rain.

The form of this process of reasoning can be represented as:
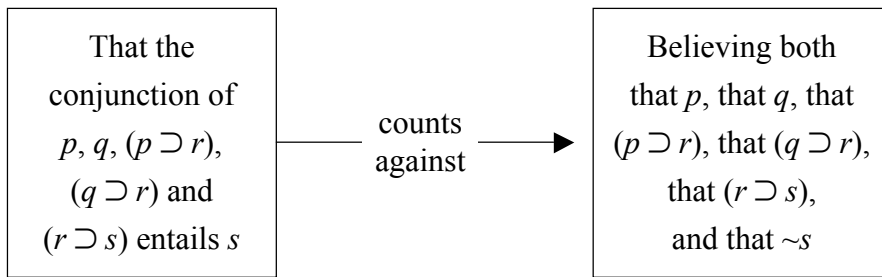
(Belief:) *p.*

(Belief:) *q.*

(Belief:) $p \supset r.$

(Belief:) $q \supset r.$
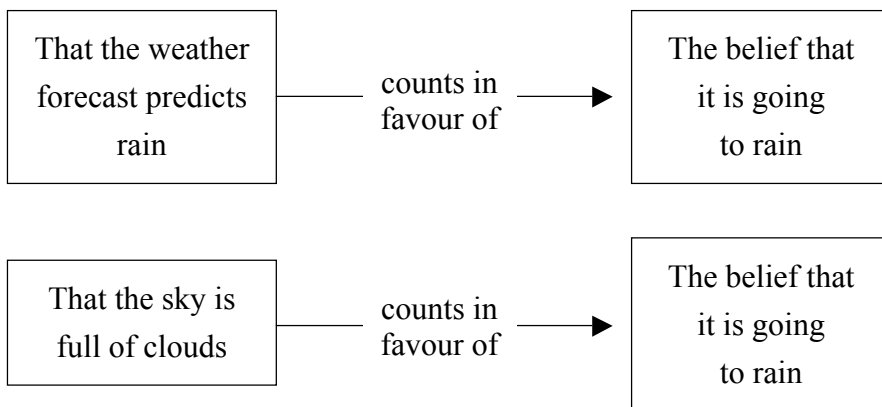
(Belief:) $r \supset s.$

So, (Belief:) *s.*

Since the conjunction of *p*, *q*, $(p \supset r)$, $(q \supset r)$ and $(r \supset s)$ entails *s*, it is plausible to suppose that this process occurs in response to the following wide-scope reason:

That the conjunction of p, q, $(p \supset r)$, $(q \supset r)$ and $(r \supset s)$ entails s	— counts against →	Believing both that p, that q, that $(p \supset r)$, that $(q \supset r)$, that $(r \supset s)$, and that $\sim s$

If it occurs in response to this wide-scope reason, (A₄) classifies this process of reasoning as inferential. However, though it is plausible to suppose that this process occurs in response to this reason, it is perhaps equally plausible to suppose that it occurs only in response to the following narrow-scope reasons:

That the weather forecast predicts rain	— counts in favour of →	The belief that it is going to rain

That the sky is full of clouds	— counts in favour of →	The belief that it is going to rain

If it occurs only in response to these narrow-scope reasons, (A₄) classifies this process of reasoning as non-inferential. Therefore, unlike (A₂), (A₄) classifies this process as either inferential or non-inferential, depending on which reasons it is a response to. And if it is unclear which reasons this process is a response to, (A₄) classifies it as neither clearly inferential nor clearly non-inferential.

Consider next the process of reasoning that (A₃) did not classify correctly, which was:

(Belief:) If it is going to rain, there is a reason to believe that the streets will get wet.
(Belief:) It is going to rain.
So, (Belief:) There is a reason to believe that the streets will get wet.

As we have seen, the form of this process can be represented as:

(Belief:) $p \supset q$.
(Belief:) p.
So, (Belief:) q.

Since the conjunction of $(p \supset q)$ and p entails q, it is plausible to suppose that this process occurs in response to the following wide-scope reason:

That the conjunction of $(p \supset q)$ and p entails q	— counts against →	Believing both that $(p \supset q)$, that p and that $\sim q$
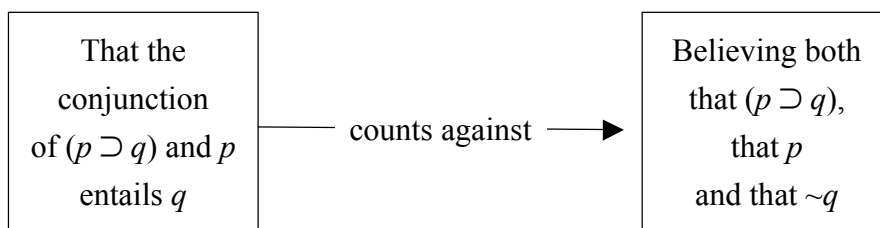
If it occurs in response to this wide-scope reason, unlike (A₃), (A₄) classifies this process of reasoning as inferential.

Consider next the following process of reasoning, of which I said in section 1 that it is neither clearly inferential nor clearly non-inferential:

(Belief:) The weather forecast predicts rain.
(Belief:) The sky is full of clouds.
So, (Belief:) It is probably going to rain.

The form of this process of reasoning can be represented as:
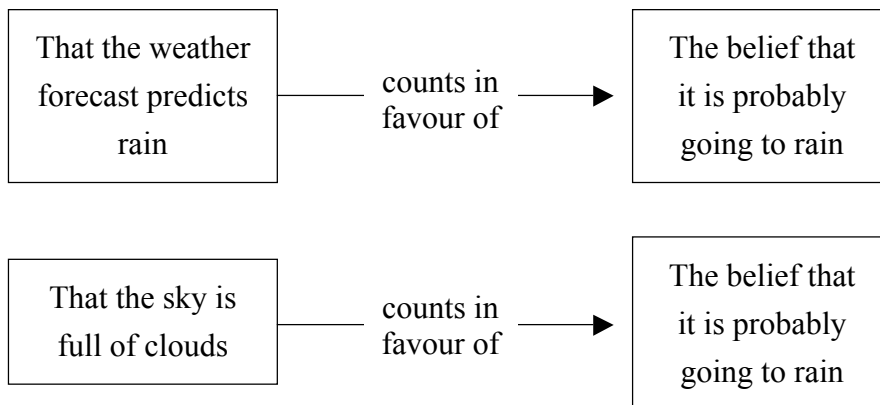
(Belief:) p.
(Belief:) q.
So, (Belief:) Probably r.

Though many wide-scope reasons are given by facts about entailment, it is plausible to

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suppose that such reasons can also be given by certain other facts, such as facts about conditional probability. For example, it is plausible to suppose that the fact that the conditional probability of r given (p & q) is high is a reason against believing both that p, that q and that it is not probable that r. This can be pictured as follows:

| That the conditional probability of r given (p & q) is high | counts against → | Believing both that p, that q and that it is not probable that r |
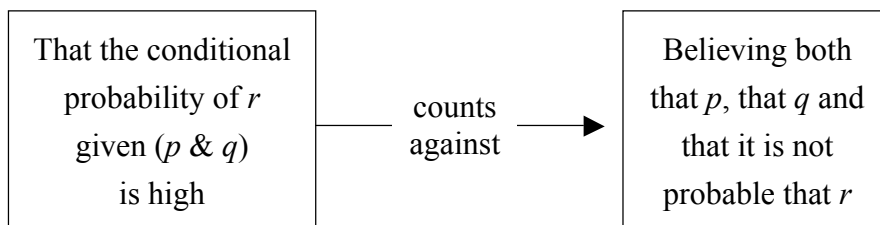
If this process of reasoning occurs in response to this wide-scope reason, (A₄) classifies it as inferential. However, though it is plausible to suppose that this process occurs in response to this reason, it is perhaps equally plausible to suppose that it occurs only in response to the following narrow-scope reasons:

| That the weather forecast predicts rain | counts in favour of → | The belief that it is probably going to rain |

| That the sky is full of clouds | counts in favour of → | The belief that it is probably going to rain |

If it occurs only in response to these narrow-scope reasons, (A₄) classifies this process of reasoning as non-inferential. Therefore, (A₄) classifies this process as either inferential or non-inferential, depending on which reasons it is a response to. And if it is unclear which reasons this process is a response to, (A₄) classifies it as neither clearly inferential nor clearly non-inferential.

Consider next the following process of reasoning, of which I also said in section 1

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that it is neither clearly inferential nor clearly non-inferential:

(Belief:) The streets are wet.

(Belief:) People are putting away their umbrellas.

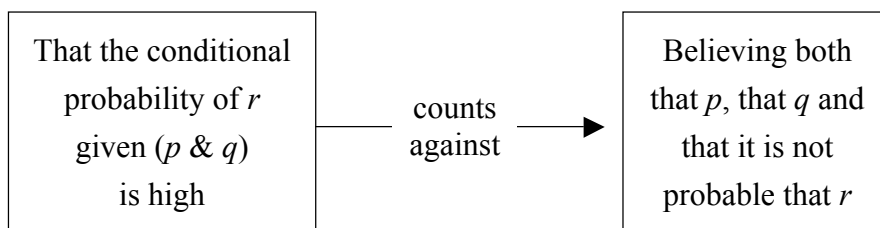So, (Belief:) It has probably just stopped raining.

As before, the form of this process of reasoning can be represented as:

(Belief:) p.
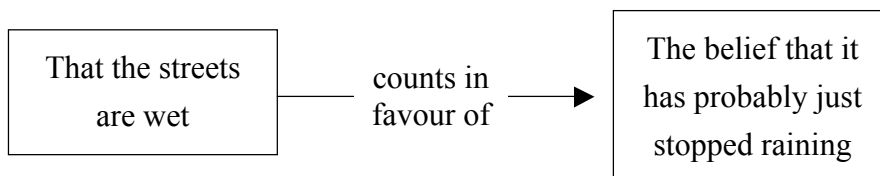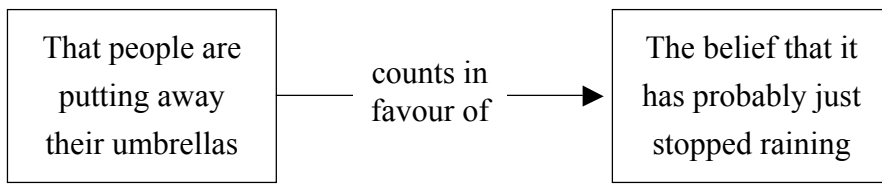
(Belief:) q.

So, (Belief:) Probably r.

Therefore, as before, it is plausible to suppose that this process occurs in response to the following wide-scope reason:

That the conditional probability of r given (p & q) is high	counts against	Believing both that p, that q and that it is not probable that r

If it occurs in response to this wide-scope reason, (A₄) classifies this process of reasoning as inferential. However, though it is plausible to suppose that this process occurs in response to this reason, it is perhaps equally plausible to suppose that it occurs only in response to the following narrow-scope reasons:

That the streets are wet	counts in favour of	The belief that it has probably just stopped raining

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That people are putting away their umbrellas	counts in favour of →	The belief that it has probably just stopped raining

If it occurs only in response to these narrow-scope reasons, (A4) classifies this process of reasoning as non-inferential. Therefore, as before, (A4) classifies this process as either inferential or non-inferential, depending on which reasons it is a response to. And if it is unclear which reasons this process is a response to, (A4) classifies it as neither clearly inferential nor clearly non-inferential.

Finally, consider the following process of reasoning, of which I also said in section 1 that it is neither clearly inferential nor clearly non-inferential:

(Intention:) I shall stay dry.
(Belief:) If I take an umbrella, I will stay dry.
So, (Intention:) I shall take an umbrella.

Some philosophers think there is a logic of so-called 'fiats' in which, using 'Fp' to represent 'fiat p', the form of this process of reasoning can be represented as:
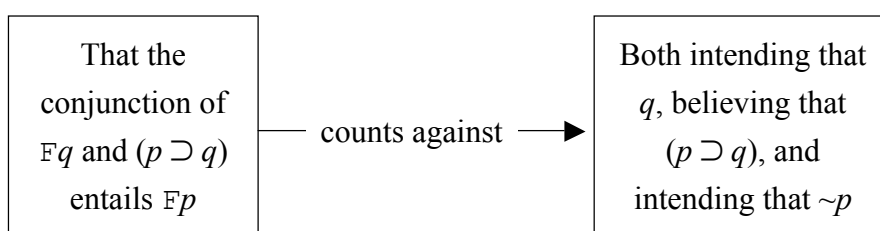
(Intention:) Fq.
(Belief:) $p \supset q$.
So, (Intention:) Fp.

In this logic of fiats, the conjunction of Fq and $(p \supset q)$ entails Fp.[32] If so, it is plausible to

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[32] See Kenny 1966 and Kenny 1975, 70-96. Kenny makes these claims about sentences rather than about propositions. 'Fiat' is what he calls the 'tropic' of a sentence, and assertoric sentences are supposed to have the tropic 'est' or 'E' (I here simply write the assertoric sentence 'Ep' as 'p'). For critical discussion of Kenny's view, see Geach 1966 and Anscombe 1995.

suppose that this process of reasoning occurs in response to the following wide-scope reason:

That the conjunction of Fq and $(p \supset q)$ entails Fp	— counts against →	Both intending that q, believing that $(p \supset q)$, and intending that $\sim p$

If it occurs in response to this wide-scope reason, (A₄) classifies this process of reasoning as inferential. However, though it may be plausible to suppose that this process occurs in response to this reason, it is perhaps equally plausible to suppose that it occurs only in response to the following narrow-scope reason:

That this person intends to stay dry	counts in favour of →	This person's taking an umbrella
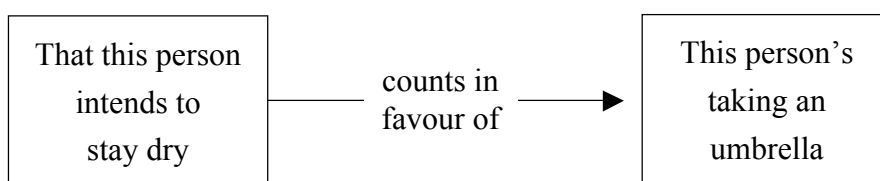
If it occurs only in response to this narrow-scope reason, (A₄) classifies this process of reasoning as non-inferential. Therefore, once again, (A₄) classifies this process as either inferential or non-inferential, depending on which reason it is a response to. And if it is unclear which reason this process is a response to, (A₄) classifies it as neither clearly inferential nor clearly non-inferential.

I conclude that, unlike the other answers to (Q) that I have discussed, (A₄) classifies all of these processes of reasoning correctly. Moreover, (A₄) does this in a unified and informative way. I therefore conclude that (A₄) meets condition (i).

8. How (A₄) meets condition (ii)

I shall now argue that, besides meeting condition (i), (A₄) also meets condition (ii). In other

words, I shall argue that it makes sense of the existence of disagreements in ethics and epistemology about whether the following claims are true:

(1)   Moral reasoning is non-inferential.

(2)   All practical reasoning is non-inferential.

(7)   We only have non-basic knowledge if we can acquire this knowledge by going through a process of inferential reasoning that starts from our basic knowledge.

(9)   We acquire knowledge through sense-perception by going through processes of inferential reasoning.

If one of the other answers to (Q) that I have discussed were correct, it would always be clear whether a process of reasoning is inferential or non-inferential. By contrast, if (A_4) is correct, this is not always clear. For if (A_4) is correct, whether a process of reasoning is inferential or non-inferential depends on the reasons in response to which it occurs, and it is not always clear in response to which reasons a process of reasoning occurs.

      There are two reasons why this is not always clear. The first is simply that

(15)   The description of a process of reasoning may not specify in response to which reasons this process occurs.

For example, consider once again the following processes of reasoning:

(Belief:) The weather forecast predicts rain.
(Belief:) The sky is full of clouds.
So, (Belief:) It is probably going to rain.

(Belief:) The streets are wet.
(Belief:) People are putting away their umbrellas.
So, (Belief:) It has probably just stopped raining.

(Intention:) I shall stay dry.

(Belief:) If I take an umbrella, I will stay dry.

So, (Intention:) I shall take an umbrella.

As we have seen, these processes can occur in response to a wide-scope reason, in which case (A4) says that they are inferential, but they can also occur only in response to narrow-scope reasons, in which case (A4) says that they are non-inferential. And my descriptions of these processes in section 1 did not specify in response to which reasons these processes of reasoning occur. Therefore, if (A4) is correct, my descriptions did not make it clear whether these processes of reasoning are inferential or non-inferential.

The second reason why it is not always clear in response to which reasons a process of reasoning occurs is more fundamental. It is that

(16)   It is not entirely clear which conditions have to be met to make it the case that a person responds to a reason.

It is often assumed that a person responds to a reason if and only if the following conditions are met:

(a)   F is a reason to φ.[33]

(b)   This person believes that F.

(c)   This person believes that F is a reason to φ.

(d)   This person φs as a result of these beliefs.[34]

But if all of these conditions had to be met to make it the case that a person responds to a

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[33] I use 'F' to cover facts and 'φ' to cover performing an action, having or forming an intentional attitude, or going through a process of reasoning.

[34] Of course, we would also need to specify what 'as a result of' means in (d). It may mean different things depending on whether 'φ' refers to performing an action, having or forming an intention, or having or forming a belief.

reason, it seems that responding to a reason would be a very reflective process that we would only rarely engage in.

To avoid having to say that responding to a reason is a process that we only rarely engage in, we could instead say that a person responds to a reason if and only if the following conditions are met:

(a)   F is a reason to φ.

(e)   This person φs.

But, of course, if these were the only conditions that had to be met to make it the case that a person responds to a reason, it seems that we would often respond to reasons accidentally, without being aware either of the facts that give us these reasons or of the fact that these facts give us these reasons.

To make responding to a reason a sufficiently unreflective process without making it something we would often do accidentally, we should probably take (b) and (c) to be about implicit rather than explicit beliefs.[35] However, just as it is not entirely clear which conditions have to be met to make it the case that a person responds to a reason, it is also not entirely clear which conditions have to be met to make it the case that a person has an implicit belief. Therefore, if we take (b) and (c) to be about implicit beliefs, it is still not entirely clear which conditions have to be met to make it the case that a person responds to a reason.

It may seem to be an advantage of the other answers to (Q) that I have discussed that, if one of these answers were correct, it would always be clear whether a process of reasoning is inferential or non-inferential. But this is in fact a disadvantage of these answers, since it makes it surprising that there are disagreements in ethics and epistemology about whether (1), (2), (7) and (9) are true. By contrast, if (A_4) is correct, it is not always clear whether a process of reasoning is inferential or non-inferential, and it is therefore much less surprising

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[35] For discussion of the distinction between implicit and explicit beliefs, see, for example, Field 1981, 83, Harman 1986, 13, and Dennett 1987, 55-6, 216-8.

that there are disagreements about whether (1), (2), (7) and (9) are true.[36] Therefore, unlike the other answers to (Q) that I have discussed, (A$_4$) meets condition (ii).

I conclude that, in addition to meeting condition (i), (A$_4$) also meets condition (ii). I therefore conclude that (A$_4$) is a satisfactory answer to (Q).

9. How (A$_4$) can help to resolve these disagreements

I shall end by showing how (A$_4$) can help to resolve the disagreements in ethics and epistemology in which the difference between inferential and non-inferential reasoning plays a role. I think there are three ways in which (A$_4$) can help to do this.

First, (A$_4$) can help to clarify the different ways in which philosophers who disagree about whether (1), (2), (7) and (9) are true use the terms 'inference' and 'reasoning'. As I said in section 2, not all philosophers use the terms 'reasoning' and 'inference' in the same way: some philosophers use the term 'inference' to refer both to what I call inferential reasoning and to what I call non-inferential reasoning, and others use the term 'reasoning' to refer only to what I call inferential reasoning. And there may also be other uses of the terms 'inference' and 'reasoning'. (A$_4$) provides a map on which the different uses of these terms can be located, which can help to resolve the disagreements in which the difference between inferential and non-inferential reasoning plays a role.

Second, (A$_4$) makes it clear what determines whether processes of reasoning are inferential or non-inferential: if (A$_4$) is correct, this is determined by the reasons in response to which these processes of reasoning occur. And, of course, what determines whether processes of reasoning are inferential or non-inferential partly determines whether (1), (2),

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[36] The existence of these disagreements would not be completely inexplicable if one of the other answers to (Q) that I have discussed were correct, since the disagreements about (1) and (2) may be due to disagreements about which processes of reasoning are moral or practical, and since the disagreement about (7) may be due to a disagreement about which knowledge is basic. However, the existence of these disagreements would certainly be less surprising if (A$_4$) is correct than if one of the other answers to (Q) that I have discussed were correct.

(7) and (9) are true. However, if (A₄) is correct, it may to some extent be unclear whether these claims are true, since it is not always clear whether processes of reasoning are inferential or non-inferential.

Third, if (A₄) is correct, we can improve our ability to tell whether processes of reasoning are inferential or non-inferential by answering the following question:

(Q₂)   Which conditions have to be met to make it the case that a person responds to a reason?

If (A₄) is correct, we will not be able to fully resolve the disagreements in which the difference between inferential and non-inferential reasoning plays a role until, besides having answered (Q), we have also answered (Q₂).

10. Conclusion

I conclude that the most satisfactory answer to (Q) is:

(A₄)   Inferential reasoning is reasoning that occurs in response to at least one wide-scope reason, and non-inferential reasoning is reasoning that occurs only in response to narrow-scope reasons.

Though I have not argued that (A₄) is the only satisfactory answer to (Q), I have argued that this answer is more successful than the other answers that I have discussed at meeting the following two conditions:

(i)   It gives a correct, informative and unified account of the difference between processes of reasoning that are clearly inferential and processes of reasoning that are clearly non-inferential.

(ii)   It makes sense of the existence of disagreements in ethics and epistemology in which the difference between inferential and non-inferential reasoning plays a

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role.

I therefore think that (A$_4$) gives the most plausible account of the difference between inferential and non-inferential reasoning that has so far been given. Moreover, I think that this account can help to resolve the disagreements in which the difference between inferential and non-inferential reasoning plays a role.[37]

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