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John Broome

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Synchronic requirements and diachronic permissions

John Broome^{a,b,c}

^aFaculty of Philosophy, University of Oxford, Oxford, UK; ^bDepartment of Philosophy, Stanford University, Stanford, CA, USA; ^cDepartment of Philosophy, Australian National University, Canberra Australia

ABSTRACT

Reasoning is an activity of ours by which we come to satisfy synchronic requirements of rationality. However, reasoning itself is regulated by diachronic permissions of rationality. For each synchronic requirement there appears to be a corresponding diachronic permission, but the requirements and permissions are not related to each other in a systematic way. It is therefore a puzzle how reasoning according to permissions can systematically bring us to satisfy requirements.

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1. Introduction

On the face of it, rationality has two aspects – a static one and a dynamic one. Rationality regulates people's mental states: some particular states, such as the state of having contradictory beliefs, are irrational and others are not. Rationality also regulates people's mental processes. In particular it regulates reasoning: there are rational and irrational ways to reason.

How are these static and dynamic aspects of rationality connected together? It is natural to assume that rational processes can help us avoid irrational states. But the two aspects of rationality have different structures. Static rationality is regulated by synchronic requirements, whereas dynamic rationality is regulated by diachronic permissions. It is hard to find a systematic connection between these two structures that satisfactorily unifies the two aspects of rationality. This paper explains the difficulty. I am sorry to say I have no solution to it.

2. Synchronic requirements

Rationality requires things of you. It requires you not to have contradictory beliefs, to intend what you believe is a means implied by an end you intend, and much else. When rationality requires something of you, and you fail to achieve it, you are not entirely rational.

The requirements I mentioned put constraints on mental attitudes that are contemporaneous with each other. In other words, they are synchronic. You may believe something at one time and believe its negation at another time, and yet be entirely rational. Only if you have those two beliefs at the same time are you necessarily not entirely rational; you violate a requirement of rationality. Similarly, if you intend an end at some time but at some other time do not intend what you believe is a means implied by that end, you may yet be entirely rational. Only if you intend an end and at the same time do not intend what you believe is a means implied by it are you necessarily not entirely rational.

There are other synchronic requirements of rationality besides the two I mentioned. Formulating them accurately is surprisingly complicated. It may seem straightforward that rationality requires you not to have contradictory beliefs. But what if you are a dialetheist? Dialetheists believe that some propositions (such as the proposition that this very proposition is false) have the special feature that both they and their negations are true. Suppose a dialetheist believes some proposition and also its negation, and also believes this is one of those special propositions. Is she necessarily irrational? It would be hard to say so. So it does not seem strictly true that rationality requires you not to have contradictory beliefs. Still, there must be some requirement of the sort. I shall not offer an accurate formulation of it in this paper (see Broome 2014, 91).

It is also hard to formulate the means–end requirement I mentioned. Here is the formulation I have arrived at after some years of development (Broome 2014, 159). It may yet be incorrect:

Instrumental Requirement. Rationality requires of *N* that, if

- (1) *N* intends at *t* that *e*, and if
- (2) *N* believes at *t* that, if *m* were not so, because of that *e* would not be so, and if
- (3) *N* believes at *t* that, if she herself were not then to intend *m*, because of that *m* would not be so, then
- (4) *N* intends at *t* that *m*.

This is strictly a requirement-schema rather than a requirement. A requirement is obtained by making appropriate substitutions for the schematic letters: the name of a person for '*N*', a specification of a time for '*t*', and sentences denoting propositions for '*e*' and '*m*'. Informally '*e*' stands for 'end' and '*m*' for 'means'.

The Instrumental Requirement can be put in a slightly less forbidding form by introducing some special terms. I use '*a* is a means implied by *b*', to mean

that, were a not so, because of that b would not be so. And I use ' m is up to N then' to mean that, if N were not then to intend m , because of that m would not be so. These are not exactly the meanings of the terms in English, but they approximate the meanings. The Instrumental Requirement can now be written:

Instrumental Requirement. Rationality requires of N that, if

- (1) N intends at t that e , and if
- (2) N believes at t that m is a means implied by e , and if
- (3) N believes at t that m is up to her herself then, then
- (4) N intends at t that m .

Many features of this formulation call for explanation (see Broome 2014, 159–69), but few of them matter to this paper. I need only draw attention to the indexical terms 'her herself' and 'then'. If N were to express the belief of hers described in (3), she would say ' m is up to me now'. In indirect speech, we represent 'me' and 'now' by 'her herself' and 'then'. The first 'then' in clause (3) refers to the time when N has this belief. It needs to be in there; the requirement would not be correctly stated without it. Suppose you intend an end, and believe the end will not be achieved unless at some time you intend a particular means to it. But suppose you do not believe that the time has yet arrived when you need to have this intention in order to bring about the means. Then you may be entirely rational even if you do not have this intention. Only when you believe the time has arrived are you irrational in not intending what you believe to be an implied means.

I shall use another requirement as an example in this paper: *Modus Ponens Requirement*. Rationality requires of N that, if N believes at t that p , and N believes at t that if p then q , and if N cares at t whether q , then N believes at t that q .

Why the clause about caring? Well, rationality does not require you to believe something that follows by modus ponens from things you believe if it does not matter to you. On the other hand, it does require you to have such a belief when it does matter. If things go badly for you because you do not believe something that follows by modus ponens from things you believe, that is a failure of rationality on your part. So there has to be a clause of this sort. It is debatable just what it should be, and for my purposes the precise form makes no difference. I have chosen to make it a caring clause.

Because the requirements I have mentioned are synchronic, and so are many other requirements of rationality, we human beings spend much of our lives in violation of requirements of rationality. When we form new plans or get new information, some of our beliefs and intentions change. This can put them out of line with others of our beliefs and intentions. It takes some time before those others catch up with the new situation. In the meantime we violate some requirements of rationality; we are not entirely rational. This bothers some

people, and can be used as an argument against synchronic requirements. But I think human beings cannot aspire to full rationality.

3. Rationality and reasoning

Requirements of rationality do not apply to everything. For example, they do not apply to stones. Call something to which requirements of rationality apply a *rational being*. A rational being is *fully rational* if and only if it satisfies every requirement of rationality that applies to it. Otherwise it is less than fully rational. If two rational beings are subject to the same requirements, and one satisfies all the requirements that the other satisfies and at least one more, then the former is *more rational* than the latter. So requirements of rationality determine degrees of rationality, and these degrees are partially ordered. If you are to become more rational – if your degree of rationality is to increase – you must come to satisfy requirements of rationality that previously you did not satisfy.

How does it happen that you satisfy requirements of rationality? Sometimes by chance. For example, you might by chance intend to do something that you later come to believe is a means implied by something else you intend. But it can also happen through processes that systematically bring you to satisfy requirements.

Some of these processes are not acts of yours; they are not things you do. For example, suppose you believe platypuses are not mammals, but then you learn that platypuses are mammals. You acquire the belief that platypuses are mammals. If everything works as normal, at the same time, automatically, some subpersonal process causes you to drop your belief that platypuses are not mammals. This process ensures you satisfy the requirement not to have this particular pair of contradictory beliefs. It brings you to satisfy a requirement, but it is not an act of yours.

Some such processes might qualify as a sort of *reasoning*. If there are any that do, I call them *passive reasoning*. Some processes of passive reasoning might bring you to satisfy a requirement of rationality. Suppose that, as a child, you were taught to reason by modus ponens. To begin with, you had to think your way consciously through the reasoning. But with time it became automatic. Then when this process occurs in you, we might still count it as reasoning, but we might no longer count it as an act of yours because it is automatic. We might treat it as more like digesting your food than eating your food. But it can bring you to satisfy a particular instance of the Modus Ponens Requirement.

I do not insist that passive reasoning really exists. But I do insist that sometimes you can come to satisfy a synchronic requirement of rationality by a process of reasoning that is an act. Such a process is *active reasoning*. For example, you reason actively about some issue you care about, employing modus ponens, and thereby come to satisfy the Modus Ponens Requirement in this instance.

Or you come to satisfy the Instrumental Requirement in a particular instance by active instrumental reasoning.

From here on in this paper, 'reasoning' refers to active reasoning only.

What exactly is this process of active reasoning, and what makes it an act? This question is not the topic of this paper, and I shall simply take for granted my own answer to it, which appears in Broome (2014). Reasoning is a process that takes you from some attitudes (the 'premise attitudes') of yours to a new attitude (the 'conclusion attitude') that you did not previously have. For example, you reason from some existing beliefs to a new belief. (Sometimes reasoning confirms an attitude you already have, rather than leading to a new attitude, but I shall ignore these cases here.) In active reasoning, the premise attitudes and conclusion attitude are conscious. You operate on the contents of the premise attitudes to derive the content of the conclusion attitude, following a rule. The rule sets up a standard of correctness, and in following the rule you recognize this standard and are guided by it. It is because you follow a rule that reasoning is something you do. That is an outline of my account of reasoning.

4. Correctness of reasoning

Evidently, some processes of reasoning are correct and others are incorrect. What distinguishes the correct ones from the incorrect ones? This question is a topic for this paper and I shall spend some time on it.

Since reasoning can be a means of coming to satisfy synchronic requirements of rationality, a natural first answer to the question is that reasoning is correct if and only if it brings you to satisfy a synchronic requirement. But that is not so: correct reasoning may not bring you to satisfy a synchronic requirement of rationality, and incorrect reasoning may bring you to satisfy one.

Here are two examples where correct reasoning does not bring you to satisfy a synchronic requirement. Suppose you believe that p and you believe that if p then q , and you reason from these beliefs to a belief that q . This is obviously correct reasoning. But if you do not care about whether q , it does not bring you to satisfy a requirement of rationality. You are not required to believe everything that follows by modus ponens from everything you believe. Or alternatively, suppose that by the time you believe q you no longer believe p . This must be possible: reasoning is not instantaneous, so you may have lost a premise attitude by the time you acquire the conclusion attitude. In that case, your reasoning does not bring you to satisfy any synchronic requirement of rationality.

Here is an example where incorrect reasoning brings you to satisfy a requirement of rationality. Suppose you care about whether q , you believe that p , you believe that if p then q , you believe that if q then r , and you believe that r . Then you reason from the last two of these beliefs to acquire the new belief that q . This is reasoning by affirming the consequent, which is obviously incorrect. Yet

it brings you to satisfy the Modus Ponens Requirement in relation to the first two beliefs.

These examples reveal a general difficulty with the natural first answer to the question of correctness. A criterion for correct reasoning needs to be a feature of the reasoning process itself, rather than a feature of the result of reasoning. The result can depend on contingencies that are irrelevant to the process's correctness.

For the same reason we can reject the idea that reasoning is correct if and only if the conclusion is validly derivable from the premises. In any case, this idea cannot be applied to all sorts of reasoning. It is aimed at only at the particular sort of theoretical reasoning that takes you to a belief from other beliefs. In any case, it is mistaken. You could reason to a conclusion incorrectly, but the conclusion might nevertheless be validly derivable from the premises. For example, suppose your premises are p , if p then q , if q then r , and r . You might reason from these premises to the conclusion q by affirming the consequent. This is incorrect reasoning, even though the conclusion is validly derivable from the premises.

Evidently the right account of correctness must pay attention to the reasoning process itself. My account of reasoning provides an easy first step towards what I believe is the right account. Since reasoning involves following a rule, we may take it that reasoning is correct if and only if it correctly follows a correct rule. A rule sets up a standard of correctness: you follow the rule correctly if and only if you conform to the rule. But if you are to reason correctly, the rule itself also needs to be correct. If you correctly follow the rule of affirming the consequent, your reasoning is incorrect. So a full account of correctness also needs to specify when a rule is correct.

5. Rules of reasoning

As a preliminary, I need to formulate rules of reasoning. Start with an instance of reasoning by modus ponens. Suppose you believe it is raining and that if it is raining the snow will melt, and you reason your way to believing the snow will melt. You do this by operating on the contents of your beliefs, which are propositions. The content of your first belief – that it is raining – is the antecedent of the conditional proposition – that if it is raining the snow will melt – that is the content of your second belief. You operate on these two contents following the Modus Ponens Rule. This rule tells you to construct the proposition that is the consequent of the conditional proposition. You end up believing this proposition.

The Modus Ponens Rule is:

From p
and If p then q
to derive q

Notice some things about this formulation. First, the rule is about the contents of the attitudes you reason with rather than the attitudes themselves. Your reasoning process consists in a progression from some attitudes to another attitude. But you reason *about* the contents of these attitudes, and you apply a rule to those contents.

Second, I have not formulated the rule as an imperative. A rule merely specifies what it is to conform to the rule; it does not tell you to conform to itself. Something else may tell you to conform to a particular rule by giving the rule *force*, as I put it. Rules are given force in various ways: some by the law, some by the command of an authority, some perhaps by rationality, and in many other ways. There are also rules that have no force: you have no reason to follow them. For instance, you have no reason to follow the rule of not ending a sentence with a preposition. You may even follow a particular rule that you have no reason to follow and that you do not even believe you have a reason to follow. For instance, out of habit you may avoid ending a sentence with a preposition. When walking along the street, you may follow the child's rule of not stepping on the lines, while at the same time thinking this is a stupid thing for an adult to do.

I have assumed so far that, when you do the snow reasoning, you follow the Modus Ponens Rule. But you might instead follow the more restricted rule:

From p
and If p then q
to derive q , if q is a proposition about snow

Or the stranger rule:

From p
and If p then q
to derive q if you are on Earth
and to derive Not q if you are elsewhere

According to Saul Kripke (1982), it may be indeterminate which rule you follow. The second of these rules is incorrect, whereas the first is correct and so is the Modus Ponens Rule. So if Kripke is right, it may be indeterminate whether you are reasoning correctly or incorrectly. This is odd, but I do not think it is a fatal problem for an account of the correctness of reasoning. We can have a criterion for the correctness of reasoning even if it can be indeterminate whether your reasoning meets the criterion.

So far, I have formulated rules in a way that suits reasoning from beliefs to a belief. But an account of correctness must cover other sorts of reasoning too. For example, it must cover reasoning that concludes in an intention, including instrumental reasoning. Instrumental reasoning takes you from intending an end to intending a means to the end. An example is reasoning that has as its premise states an intention to visit Venice and a belief that you will not visit Venice if you do not buy a ticket, and has as its conclusion state an intention to buy a ticket.

I take it that the content of an intention, like the content of a belief, is a proposition. For example, an intention to visit Venice has the same content as a belief that you will visit Venice: namely, the proposition that you will visit Venice. But an intention and a belief, even if they have the same content, do not play the same role in reasoning. From an intention to visit Venice, with some other premise, you could derive an intention to take a means of visiting Venice. But from a mere belief that you will visit Venice you could not derive an intention to take a means of doing so. So rules that guide reasoning must keep track of not only the propositional contents of the attitudes involved, but also the nature of the attitudes they are the contents of.

They can do so by being rules about *marked contents*. I treat a marked content as a pair consisting of a proposition that is the content of an attitude together with a 'mark', which is the type of attitude it is the content of. The marked content of a belief that you will visit Venice is the pair < I shall visit Venice; belief >. (I express the proposition in the way you would, using the pronoun 'I'.) The marked content of an intention to visit Venice is the pair < I shall visit Venice; intention >.

The instrumental reasoning I described might follow this rule:

From < I shall visit Venice, intention >
and < I shall not visit Venice if I do not buy a ticket; belief >
to derive < I shall buy a ticket; intention >

The Modus Ponens Rule should be formulated in the same way:

From < p ; belief >
and < If p then q ; belief >
to derive < q ; belief >

This is the same rule as I presented before, but specified more fully.

At the end of section 4, I briefly outlined my account of the reasoning process. That account now needs to be modified slightly. In reasoning, you operate, not on the contents of your attitudes alone, but on their marked contents. You do so following a rule of the sort I have described.

6. Basing prohibitions

Now we know what a rule is like, we can ask what determines whether a rule is correct. It is important to recognize that this is a question about permissibility rather than requirement. For something to be correct – a rule or anything else – is for it to be permissible rather than required. It is required only if there is no permissible alternative. Also, when we are dealing with rules of reasoning, we can assume that the source of correctness is rationality. For a rule to be correct is for it to be rational – which is to say, rationally permissible – to follow it.

It is useful to start with the opposite: what rationality prohibits. A prohibition of rationality is simply a requirement of rationality with a negative content: a

requirement not to do something or not to be in some state. Prohibitions have a crucial place in an account of rationality. Without them, we could not account for what Schroeder (2004) calls the 'asymmetry' of some features of rationality.

Most requirements of rationality have a conditional content. This means there is more than one way of satisfying them. You will satisfy a requirement if the consequent of its content is true or if one of its antecedents is false. Take this instance of the Instrumental Requirement from section 2:

Rationality requires of you that, if

- (1) You intend to go to London, and if
- (2) You believe that taking a train is a means implied by your going to London, and if
- (3) You believe that taking a train is up to you now, then
- (4) You intend to take a train.

You will satisfy this requirement if you intend to take a train, or if you do not intend to go to London, or if you do not believe that taking a train is a means implied by your going to London, or if you do not believe that taking a train is up to you yourself now. The requirement can be equally well satisfied in any of these ways. It is symmetrical in this respect.

A way to put this is to say that conditional requirements allow contraposition. For example, without any change in its meaning, the Instrumental Requirement may be written:

Contraposed Instrumental Requirement. Rationality requires of *N* that, if

- 1) *N* intends at *t* that *e*, and if
- 2) (4') *N* does not intend at *t* that *m*, and if
- 3) *N* believes at *t* that *m* is up to her herself then, then
- 4) (2') *N* does not believe at *t* that *m* is a means implied by *e*.

In the example:

Rationality requires of you that, if

- (1) You intend to go to London, and if
- (2) (4') You do not intend to take a train, and if
- (3) You believe that taking a train is up to you now, then
- (4) (2') You do not believe that taking a train is a means implied by going to London.

Contraposing a requirement makes it plain how it can be satisfied in various ways. But not all ways of *coming to* satisfy a requirement are necessarily rational. There is nothing irrational about satisfying clause (4) of the uncontraposed version because you satisfy clauses (1), (2) and (3). However, it would generally be irrational to satisfy clause (2') of the contraposed version because you satisfy clauses (1), (4') and (3). It seems to be irrational for your non-belief to be explained in this way by the state of your intentions. So there is an

asymmetry, not in the requirement itself, but among ways of coming to satisfy the requirement.

The asymmetry needs to be stated more accurately. Suppose the story is this. You initially believe that taking a train is a means implied by going to London. You intend to go to London. But you have a standing intention not to take any train. The conflict among these attitudes causes you to think again, and the result is that you realize you can get to London by bus. So you drop your belief that taking a train is a means implied by going to London. There may be nothing irrational about this process, even though your non-belief is explained by the state of your intentions. We learn from this story that there need be nothing irrational about your non-belief's being explained causally by your intention and non-intention. We therefore need to refine the 'because' in the previous paragraph. There is irrationality only if your satisfying clause (2') is *based on* your satisfying clauses (1), (4') and (3), rather than being merely causally explained by them. The asymmetry lies in basing.

What is it for one attitude or non-attitude to be based on others? I cannot give an analysis of basing but I can make a couple of remarks about it. Basing is not mere causation, but it does imply a causal connection: the basing attitudes or non-attitudes causally explain the based one. Because causation takes time, it follows that the basing attitudes or non-attitudes exist before the based one. Basing can therefore be a diachronic relation.

You might be doubtful about diachronic basing. Even if the basing attitudes cause the based attitude, you might think that the based attitude can be based on the basing attitudes only for as long as the basing attitudes persist. But that is not so. Suppose at some time you see a light in a house, and so believe that a light is switched on in the house. Suppose on this basis you believe someone is in the house. Your belief that someone is in the house is based on your belief that a light is switched on in the house. Suppose you later see the light going off, and so at a later time no longer believe there is a light switched on in the house. But you continue to believe someone is in the house, though you acquire no further evidence of this. Then your belief at this later time that someone is in the house is based on your earlier belief whose content was that a light is switched on in the house.

When you acquire an attitude by reasoning from other attitudes, the attitude you acquire is based on the others. But basing does not always arise from reasoning. An attitude or non-attitude may be based on others as a result of processes that are not acts of yours. When you learn that platypuses are mammals and consequently drop your belief that platypuses are not mammals because of some subpersonal process, your non-belief in the proposition that platypuses are not mammals is based on your belief in the proposition that platypuses are mammals. This basing does not arise from reasoning.

Now I can state more accurately what we can learn from the example of the train to London. The conclusion is that rationality prohibits you – (rationality requires of you that it is not the case that):

At some time you intend to go to London, and
 at some time you do not intend to take a train, and
 at some time you believe that your taking a train is up to you, and
 at some time you do not believe that your taking a train is a means implied by your going to London, and
 your non-belief that taking a train is a means implied by your going to London is based on your intention to go to London, your non-intention to take a train, and your belief that taking a train is up to you.

This rules out not just contemporaneous attitudes and non-attitudes with a particular basing connection, but also ones that are not contemporaneous. It is a diachronic basing prohibition.

7. Basing permissions

There clearly are basing prohibitions, and they satisfactorily explain the asymmetry. The opposite of a basing prohibition is a basing permission. In Broome (2014) I said that a permission is simply the negation of a prohibition. I meant that for something to be permitted by rationality is for it not to be prohibited. I now realize that was a mistake. My own account of requirement, which is presented in Broome (2014), means I have to allow for some things that are neither prohibited nor permitted. ‘Permitted’ is a narrower category than ‘not prohibited’. However, the distinction is technical and need not trouble us here.

Instead, I shall take the idea of permission for granted, and go ahead to formulate a couple of basing permissions of rationality. One is: *Modus Ponens Permission*. Rationality permits *N* that, if *N* believes at some time that *p*, and *N* believes at some time that if *p* then *q*, then *N* believes at some time that *q* and *N*'s belief that *q* is based on *N*'s belief that *p* and *N*'s belief that if *p* then *q*.

This formulation contains some slightly deviant grammar, but there is no harm in that. It does not specify that the time of *N*'s belief that *q* is no earlier than the time of her other beliefs, which may seem odd. But doing so is not necessary because it is a feature of basing that a based belief cannot be earlier than its basing beliefs.

Another basing permission is:

Instrumental Permission. Rationality permits *N* that, if

- (1) *N* intends at some time that *e*, and if
- (2) *N* believes at some time that *m* is a means implied by *e*, and if
- (3) *N* believes at some time that *m* is up to her herself, then
- (4) *N* intends at some time that *m* and
- (5) *N*'s intention that *m* is based on *N*'s intention that *e*, and *N*'s belief that *m* is a means implied by *e*, and *N*'s belief that *m* is up to her herself.

These two examples of permissions resemble the corresponding requirements, but differ from them in various ways (apart from being permissions rather than requirements).

First, they are *basing* permissions; they are permissions not just to have particular combinations of attitudes, but to have one attitude on the basis of others. The corresponding requirements are not concerned with basing.

Second, they are diachronic, whereas the requirements are synchronic. At least, they are potentially diachronic. They permit you to have an attitude based on attitudes you no longer have. This is necessary. In section 6, I gave the example of your belief that someone is in the house, which you have on the basis of a belief you had at an earlier time that a light is on in the house. This sort of diachronic basing is clearly permitted by rationality. Since reasoning takes time, an attitude acquired through reasoning will always be based on attitudes you had a short time previously.

Third, whereas the requirements are symmetric, the permissions are not. They cannot be contraposed. This is not to say that there are not other permissions corresponding to contraposed versions of the corresponding requirements. Consider this putative permission:

Contraposed Modus Ponens Permission. Rationality permits *N* that, if at some time *N* does not believe that *q*, and *N* believes at some time that if *p* then *q*, then at some time *N* does not believe that *p* and *N*'s non-belief that *p* is based on *N*'s non-belief that *q* and *N*'s belief that if *p* then *q*.

This formula is tricky in some ways, and I do not certify the Contraposed Modus Ponens Permission as true. But I know no conclusive argument against it. On the other hand, no permission corresponds to the Contraposed Instrumental Requirement I stated in section 7.

Fourth, the conditional clauses in the permissions are weaker than the corresponding clauses in the requirements. So the permissions apply in some circumstances where the requirements do not. It is to be expected that more is permitted than is required.

The difference in the case of the Modus Ponens Permission is that the permission does not contain the caring clause that appears in the Modus Ponens Requirement. This is as it should be. Whereas you are not required to believe everything that follows by modus ponens from anything you believe, you are permitted to believe anything that follows.

The difference in the case of the Instrumental Permission is more subtle. Clause (3) of the permission does not contain the indexical adverb 'then'; whereas the same clause in the requirement does. Again, this is as it should be. It is permissible to intend means that you believe are implied by an end you intend, if you believe that achieving the means is up to you – if, that is to say, you believe the means would not come about were you not to intend it. Moreover, it is permissible to intend the means on that basis. This is permissible even if you do not believe you have to intend the means at that very moment

in order for it to come about. When you see a need for intending means coming up in the future, you may permissibly plan ahead at your leisure.¹ But you are not actually required to intend the means until you have reached a time when you believe you need to intend it if it is to come about. Indeed, you must plan ahead if you are to form your intention by reasoning. Since reasoning takes time, an attitude you acquire by reasoning is based on attitudes you have at a time before you acquire it. If you wait to start your reasoning until you believe the intention is already necessary, you are therefore too late by your own lights. You will not have your intention at a time when you believe you must have it in order for the means to come about.² This reinforces the point that reasoning is regulated by permissions of rationality rather than requirements. And it shows that the Instrumental Permission has to have the weaker version of clause (3), without 'then'.

8. Correctness of rules and correctness of reasoning

Our question was when a rule of reasoning is correct, and we now have an answer available.

Any permission of rationality has the form:

Rationality permits *N* that, if

N has attitude *A* at some time, and if

N has attitude *B* at some time, and if

N has attitude *C* at some time, and if

..., then

N has attitude *K* at some time and

N's attitude *K* is based on *N*'s attitudes *A*, *B*, *C* ...

The 'attitudes' in this formula may include non-attitudes such as not believing. For any permission we can define a corresponding rule:

From

<*a*; *A*-type > and

<*b*; *B*-type > and

<*c*, *C*-type > and

...

to derive

<*k*, *K*-type > .

A rule of reasoning is correct if and only if it corresponds to a genuine permission of rationality. That is the answer.

Reasoning is correct if and only if it correctly follows a correct rule, and a rule is correct if and only if it corresponds to a permission of rationality. This does

not mean that reasoning is correct if and only if it is in accord with a permission of rationality. You may reason incorrectly (not correctly following a correct rule) but nevertheless arrive at a conclusion-attitude that is in accordance with a permission of rationality.

(Note in passing. The rule of instrumental reasoning I described in section 5 is not correct by this criterion; the rule it follows does not correspond to the Instrumental Permission. It is indeed not a correct rule. It needs some more premises. The instrumental reasoning I described in section 5 is not correct unless it is enthymematic, with some further suppressed premises. (Broome 2014, 259–60))

9. Diachronic permissions and synchronic requirements

We have made a little progress with correctness, but more is needed. This account of correctness for reasoning simply throws the question onto permissions of rationality. How is it determined what rationality permits?

For the special case of a belief based on beliefs, there may seem to be an easy answer. It may seem that it is permissible to base a belief on other beliefs if and only if the proposition that is the content of the based belief follows validly from the propositions that are the content of the basing beliefs. But this is doubtful. Suppose you believe each of Peano's Axioms. Suppose you reason from those beliefs to believing the Goldbach Conjecture, so you end up believing the Goldbach Conjecture on the basis of your believing Peano's Axioms. And suppose that the Goldbach Conjecture follows validly from Peano's Axioms. (Nobody knows whether this is so.) It is doubtful that you reason correctly and that your belief is permissibly based, since you have no idea whether the conclusion follows from the premises.

Be that as it may, this criterion for permissibility has at best a limited scope. There are basing permissions involving other attitudes besides belief, such as the Instrumental Permission. The criterion does not extend to them. It is not true in general that it is permissible to base an attitude on others if and only if the content of the based attitude follows validly from the contents of the basing attitudes. For example, suppose you believe you will catch flu (because there is so much around) and you believe that you will not catch flu unless you are in contact with a fluey person. It would not be permissible for you to base an intention to be in contact with a fluey person on the basis of those beliefs.

Sadly, I do not have a general answer to the question of how it is determined what rationality permits. Nor do I have a general answer to the question of what rationality requires. These are serious lacks, and I wish I could overcome them. I know some constraints on requirements of rationality. For one thing they are requirements on the state of your mind, so rationality cannot require a physical act for example. But in specifying requirements and permissions I have little to go on besides intuition.

Here I shall draw attention to just one part of the question of how it is determined what rationality permits. What is the relation between requirements and permissions? This is the question I introduced in section 1. How are the static and dynamic aspects of rationality unified? I take it that reasoning is a means we have of improving our rationality. But you improve your rationality – increase your degree of rationality – only if you come to satisfy a requirement of rationality that you did not previously satisfy. Merely conforming to permissions of rationality, and avoiding prohibitions of rationality, does not directly make you more rational. If you reason correctly, you act as rationality permits you to, but that on its own does not improve your rationality. Only satisfying a new requirement does that. So how does correct reasoning achieve the end of satisfying a new requirement? Understanding the relation between requirements and permissions should answer that question.

We can take it for granted that whatever is required is permitted. So to every synchronic requirement of rationality there is a synchronic permission in which ‘requires’ is replaced with ‘permits’. But this gives us no help. It tells us nothing about the process of coming to satisfy requirements.

It also seems plausible that, for every synchronic requirement there is a corresponding diachronic basing permission. I gave the two examples of the Modus Ponens Permission corresponding to the Modus Ponens Requirement, and the Instrumental Permission corresponding to the Instrumental Requirement. Basing permissions do tell us about processes. They determine whether or not a process of reasoning is correct. And a reasoning process that is made correct by a particular basing permission can bring you to satisfy the corresponding requirement.

But how come? First of all, why does a synchronic requirement always have a corresponding basing permission? And why is the corresponding permission such that, by reasoning in the way it permits, you can come to satisfy the requirement in particular cases. For example, reasoning in accordance with the Modus Ponens Permission can be directed towards satisfying the Modus Ponens Requirement in cases where you care about the result. It is easy to see how this works in this particular case: you simply reason according to the Modus Ponens Permission to arrive at a belief in some proposition that you care about. But how come the same thing works in general?

This is puzzling because permissions differ from requirements in the various different ways I listed in Section 7, and they seem not to be related together in a systematic way. Their relation is systematic in one respect: the relevant permissions are basing permissions and they are diachronic, whereas the relevant requirements do not mention basing and they are synchronic. But the examples reveal no system in other respects.

Take the Contraposed Instrumental Requirement, for example. This is a perfectly good synchronic requirement, and we could ask what diachronic basing permission corresponds to it. But the corresponding diachronic basing

permission is the Instrumental Permission set out in section 7. This is the same as the one that corresponds to the ordinary Instrumental Requirement. So in order to get from the Contraposed Instrumental Requirement to its corresponding diachronic basing permission, we first have to contrapose it to get the ordinary Instrumental Requirement, and then we have to drop the indexical 'then' from its condition (3). None of this is like what we have to do to get from the Modus Ponens Requirement to the Modus Ponens Permission.

Furthermore, instrumental reasoning has the odd feature that, if you do the reasoning at the time when the conditions of the Instrumental Requirement are satisfied, your reasoning will fail by your own lights. Instead, you have to do instrumental reasoning in accordance with the Instrumental Permission before the Instrumental Requirement itself kicks in. Again, there is nothing like this with the Modus Ponens Requirement.

So there is a puzzle.

10. Are there synchronic requirements?

One way to overcome it would be to deny that rationality has a static aspect. Perhaps there are no such things as synchronic requirements; rationality might be entirely concerned with processes. We have seen that certain processes are permitted by rationality and others are prohibited. That might be all there is to rationality. This view has what may be seen as a further merit. I explained at the end of section 2 that we are very often in violation of synchronic requirements. When you acquire a new attitude, it takes time for your other attitudes to adjust to it, and in the meantime you are not entirely rational. It is therefore impossible for a human being to be entirely rational. Some philosophers find that an undesirable conclusion.

But actually there truly are synchronic requirements. Suppose there were none. And suppose that, without going through any irrational process, you find yourself believing p , believing that if p then q , caring about whether q , but not believing q . If there were no synchronic requirements, you might be entirely rational and you might continue to be entirely rational even if you remain in this state indefinitely. That is absurd.

This argument could be resisted by a response that calls on the idea of a reason. The response is that your belief that p and your belief that if p then q together constitute a reason to believe q . Given that you have a reason to believe q , the response continues, it follows that you are not rational unless you believe q . But this goes too far. When you have a reason to believe q , it cannot follow that you are not rational just because you do not believe it. You might have a stronger reason not to believe it. (This argument is set out in more detail in Broome 2014, 79–82.)

So we cannot avoid the conclusion that there are synchronic requirements of rationality. That leaves us with the difficulty of finding a systematic explanation

of how they are connected with the diachronic permissions of rationality that regulate reasoning. We still need an explanation of how the static and dynamic aspects of rationality are connected together.

Notes

1. As Geoff Brennan pointed out to me.
2. As Kieran Setiya pointed out to me.

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