Requirements

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ABSTRACT: Expressions such as ‘morality requires’, ‘prudence requires’ and ‘rationality requires’ are ambiguous. ‘Morality’, ‘prudence’ and ‘rationality’ may refer either to properties of a person, or to sources of requirements. Consequently, ‘requires’ has a ‘property sense’ and a ‘source sense’. I offer a semantic system for its source sense. Then I consider the logical form of conditional requirements, in the source sense.

Wlodek is a wonderful philosopher and a wonderful friend. He is also a wonderful philosophical friend: he provides the most perceptive, penetrating and useful comments on other people’s philosophical work. The topic of this paper is much more within his domain of expertise than within mine, and I need his advice on it. I have not been able to garner comments from him because this collection of papers is a secret birthday present. However, the paper ends with a question, which I hope in due course he will answer for me.

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1. Ought and requirements

How is it determined what you ought to do, what you ought to believe, what you ought to hope for, and so on? In general, how is it determined, for some *F*, whether you ought to *F*? Here is one very broad suggestion. It is determined by *requirements* that issue from various sources. Prudence requires you to look both ways before you cross a road; rationality requires you not to have contradictory intentions; convention requires you to shake hands with your right hand rather than your left; the evidence requires you to believe in natural selection; the law requires you to pay taxes; and so on. Some of these requirements help to determine what you ought to do, what you ought to believe and so on. I call those ones *normative* requirements. Whether or not you ought to *F* is determined by whatever normative requirements you are under either to *F* or not to *F*. That is my suggestion.

This paper is about requirements. It is about the concept of *requirement*, rather than about what substantively requires what. I shall investigate what 'requires' means. I shall be especially concerned with the formal aspects of its meaning. Deontic logic is supposed to describe the formal aspects of the meaning of 'ought', and the formal aspects of the meaning of 'requires' might be called the logic of 'requires'. However, it will emerge that I doubt that 'requires' has any logic worth the name. Still, I shall at least outline a semantic theory for it.

An account of *requirement* is the beginning of an account of *ought*. But to develop it into an account of *ought*, two further steps are needed. This paper is not about these steps, but I shall start by briefly identifying what they are and some of the problems that will arise when we try to take them. That will occupy sections 2 and 3.

2. Which requirements are normative?

The first step is to determine which requirements are normative. Requirements issue from various sources: morality, prudence, evidence, Catholicism and so on. Each source sets up a system of requirements. Their requirements are automatically normative in one sense. Corresponding to any requirement is a sort of correctness; it is correct to satisfy a requirement and incorrect not to. It is correct to offer your right hand for shaking, and incorrect to offer your left hand. Wherever there is correctness, there is normativity in one sense.

But I do not use 'normative' in this wide sense. When I say a requirement is normative, I mean it helps to determine what you ought to do. More accurately, a requirement on you to *F* is normative if and only if it constitutes a reason for you to *F*. The word 'requires' is not inherently normative in my narrower sense. When I say Catholicism requires you to abstain from meat on Fridays, I am not necessarily saying anything against your eating meat on Fridays.

So some requirements may not be normative. However, the requirements that issue from some particular sources are indeed normative. I call a requirement that is normative a 'normative requirement',[1] and when some source issues normative requirements, I shall say it is a normative source. The first step in moving from an account of *requirement* to an account of *ought* is to work out which sources are normative.

Because it is a real issue which sources of requirements are normative, I prefer to use the expressions 'morality requires', 'rationality requires' and so on, rather than 'morally ought', 'rationally ought' and so on. These 'adverbial oughts', as I call them, are common but unsatisfactory in one respect. The word 'ought' in this sort of context carries a connotation of normativity. So using an adverbial 'ought' begs the question of whether a particular source is normative. For example, saying 'You rationally ought to *F*' begs the question of whether rationality is normative. I therefore prefer not to use 'ought' that way. I use it only for what is sometimes called the 'all-things-considered' concept of *ought*.

I agree that some sources of requirements are obviously normative. Morality is one. But even the normativity of morality may

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1 I have used this term with a different meaning in the past. I apologize for my inconstancy.

be qualified. Suppose there is clear evidence that the king is dead, but suppose that, by believing the king is alive, you could bring important benefits to many people. Then it seems that morality requires you to believe the king is alive. However, according to an influential school of thought known as 'evidentialism',[2] reasons to believe can issue only from evidence, so the benefit to be derived from believing the king is alive is not a reason to believe it. An evidentialist must therefore either deny that morality requires you to believe the king is alive, or deny that morality is normative in this context. If she takes the second option, she will deny that morality is normative for beliefs.

Still, perhaps with qualifications, morality is obviously normative, and so is prudence. Evidence seems another obvious source of normative requirements; if the evidence requires you to believe something, that seems obviously a reason to believe it. On the other hand, convention seems not to be a source of normative requirements. But here is another complication: the requirements of convention are sometimes supported by morality. Morality may sometimes require you to conform to convention, because breaching convention might cause upset and embarrassment. So some sources of requirements may be supported by others, and be normative in a

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2 For instance, see Adler, *Belief's Own Ethics*.

derivative way. Another example is the law. As a source of requirements, the law is extensively supported by morality and by prudence.

Nevertheless, there are some sources whose normativity is genuinely in question. For one, I think it is a genuine question whether rationality is normative.[3] Answering questions of this sort is the first step in moving from a theory of *requirement* to a theory of *ought*.

3. How do normative requirements combine?

The second step is to work out how those requirements that are normative participate in determining what you ought to do, what you ought to believe, and so on. In some cases, the determination is straightforward. For some *F*s, you find yourself under a normative requirement to *F*, and under no normative requirement not to *F*. For those, you ought to *F*. For other *F*s, you find yourself under a normative requirement not to *F*, and no normative requirement to *F*. For those, you ought not to *F*. For still others, you find yourself under no normative requirement either to *F* or not to *F*. For those, it

3 See 'Why be rational?' by Niko Kolodny, and my 'Does rationality give us reasons?'.

is not the case that you ought to *F* and not the case that you ought not to *F*.

But in other cases, different normative requirements conflict with each other: for some *F*s, you find yourself under one or more normative requirements to *F*, and one or more normative requirements not to *F*. These cases are more difficult; the conflict will have to be resolved somehow. It may turn out that you ought to *F*, or that you ought not to *F*, or that it is not the case that you ought to *F* and not the case that you ought not to *F*.

Different substantive normative theories will say different things about how a conflict is resolved. According to some, the requirements that issue from one particular source dominate all others. Morality is sometimes thought to dominate, so that, necessarily, if morality requires you to *F*, you ought to *F*.[4] According to other theories, the resolution will emerge from some weighing or balancing of the conflicting requirements.

In any case, in one way or another, whether or not you ought to *F* will emerge from the requirements you are under to *F* and those you are under not to *F*. To work out how that happens is the second step in moving from a theory of *requirement* to a theory of *ought*.

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4 Chapter 4 of Samuel Scheffler's *Human Morality* is a useful discussion of whether this is so.

Neither of the steps is straightforward. Nevertheless, we can expect the semantics of ‘ought’ to inherit some of the semantics of ‘requires’. In many cases, you ought to *F* just because you are required to *F* by one particular source of requirements. This will be so if no other source is involved, or alternatively if one source dominates all others. If morality is dominant, say, then the semantics of ‘morality requires’ will be a large part of the semantics of ‘ought’. The conceptual structures of *ought* and *requires* are bound to be closely related.

One consequence is that we may expect deontic logic to provide a useful precedent for analysing the semantics of ‘requires’. Conversely the semantics of ‘requires’ may provide useful guidance for deontic logic.

4. Property requirements

Now I come to my main subject: the meaning of ‘requires’ in such expressions as ‘morality requires’ and ‘rationality requires’. I first need to sort out a potent cause of confusion. These expressions are ambiguous, because ‘morality’, ‘rationality’ and the rest are themselves ambiguous.

Take ‘morality’ as an example. ‘Morality’ is sometimes the name of a property that a person may possess: the property of being moral. When it is, the word ‘requires’ in ‘morality requires’ has a particular sense, which I shall call the ‘property sense’.

In this case, ‘morality requires’ follows the model of ‘survival requires’. ‘Survival’ is the name of a property. ‘Survival requires you to eat’ means that your eating is a necessary condition for your possessing the property of survival. It means that, necessarily, if you survive you eat. Correspondingly, ‘Morality requires you to be kind to strangers’ means that, necessarily, if you are moral – if you have the property of morality – you are kind to strangers. Similarly, when ‘prudence’ is the name of a property, ‘Prudence requires you to look carefully before crossing the road’ means that, necessarily, if you are prudent, you look carefully before crossing the road. When ‘rationality’ is the name of a property, ‘Rationality requires you to intend the best means to your end’ means that, necessarily, if you are rational you intend the best means to your end. And so on. In general, ‘*P* requires of *N* that *p*’, where *P* is a property, means that, necessarily, if *N* has *P*, then *p*.

The modal word ‘necessarily’ appears in this formula because ‘requires’ has an inherently modal meaning. ‘Survival requires you to eat’ means that you *must* eat if you are to survive and that you *cannot* survive without eating. Its negation ‘Survival does not require you to eat’ means that you *can* survive without eating. ‘Requires’ is one of a clutch of terms that incorporate the idea of necessity.

However, the modality in the formula introduces a small problem. I need to mention it because it will reappear later. Take the conditional sentence ‘If you jump from a plane, your survival

requires you to have a parachute'. Read literally with the meaning I gave, this would mean that, if you jump from a plane, then, necessarily, if you survive you have a parachute. But it does not mean that. Whereas the original sentence is true, it is not true that, if you jump from a plane, then, necessarily, if you survive you have a parachute. You can perfectly well survive without having a parachute; you have only to avoid jumping from a plane. Even if you actually do jump from a plane, you do not have to do so, so it is not necessarily the case that, if you survive, you have a parachute. There is the problem.

It has a standard solution. Colloquial English sentences, read literally, do not always give modal operators their logically correct scope. Compare the sentence 'If you jump from a plane, you must have a parachute to survive'. This really means that you must (if you jump from a plane, have a parachute to survive). The scope of the 'must' really includes the whole conditional, even though in the literal English it includes only the consequent. Similarly, a literal reading of the sentence 'If you jump from a plane, survival requires you to have a parachute' gives 'requires' the wrong scope. The sentence really means that survival requires of you that, if you jump from a plane, you have a parachute. It means that, necessarily, if you survive, then, if you jump from a plane, you have a parachute. This is a truth.

The lesson to be learned is that we must not be too literal over the scope of ‘requires’. I shall return to this point in section 11.

I said that ‘*P* requires of *N* that *p*’, where *P* is a property, means the same as ‘Necessarily, if *N* has *P*, then *p*’. We therefore need no special theory for the logic of ‘requires’ in this sense; its logic comes straight from the logic of the alethic modal term ‘necessarily’.

We have a precedent from deontic logic. Stig Kanger showed how ‘It ought to be the case that *p*’ can be reduced to ‘Necessarily, if *Q* then *p*’, where *Q* is some fixed proposition.[5] *Q* can be understood as the proposition that everything is as it ought to be. For the reduction to work, we have to assume as an axiom that *Q* is possible. Then, provided the necessity operator satisfies the system K of modal logic, ‘It ought to be the case that’, reduced this way, will satisfy standard deontic logic.

We can adapt Kanger’s reduction to ‘requires’. We have only to put ‘*P* requires of *N* that’ in the place of ‘It ought to be the case that’, and ‘*N* has *P*’ in the place of ‘*Q*’. We can conclude that ‘*P* requires of *N* that’ satisfies standard deontic logic, provided necessity satisfies the system K, and provided it is possible that *N* has the property *P*.

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5 I have this from Dagfinn Føllesdal and Risto Hilpinen’s ‘Deontic logic: an introduction’. These authors attribute the reduction to an unpublished paper of Kanger’s written in 1950.

We may take it for granted that necessity satisfies K. K is a weak logic, and it seems inescapable for any sort of necessity. Whether it is possible for a person to have a particular property will depend on what sort of possibility we have in mind and on how high we set the threshold for having the property. If we go for practical possibility and set the threshold high, it might well turn out impossible to possess properties such as morality, rationality or prudence. I expect it is not practically possible for any of us to be fully moral, fully rational or fully prudent.

But if we are to use the property sense of 'requires', we must not set the standard as high as that. If it is impossible for you to be rational, say, then anything is a necessary condition for you to be rational, and rationality requires absolutely everything from you. The notion of a requirement of rationality will lose its point. So we must set our standards to make sure it is possible for *N* to have the property *P* that we are interested in. We therefore know that '*P* requires of *N* that' will satisfy standard deontic logic.

5. Source requirements

But 'requires' has another sense too. The names 'morality', 'rationality', 'prudence' and the rest sometimes refer, not to properties, but to sources of requirements. When they are read that way, 'morality requires' and the rest follow the model of 'the law requires'. The law is a source of requirements, and 'the law' is not

ambiguous in the way that ‘morality’ and the rest are; it is never the name of a property. So ‘the law requires’ provides a useful model. It picks out a second sense of ‘requires’. This is the sense that appears in sentences of the form ‘*S* requires of *N* that *p*’, where *S* is a source of requirements. For reasons that will emerge, I think ‘morality requires’ and the rest are most naturally read with this meaning. But in any case this is the meaning I shall chiefly be concerned with in this paper. I shall call it the ‘source sense’. When I use ‘requires’, it has the source sense unless I say otherwise.

I am not sure what sort of thing sources of requirements are – what category the law, morality, rationality, prudence and the rest fall under. I am not sure what is the generic term for things of this sort. But for my purposes the nature of the category does not matter. What matters is that each of these sources issues a number of requirements. To say the source requires something of you is to say that thing is among the source’s requirements.

How are we to represent formally this meaning of ‘requires’? We can specify an individual requirement by means of a proposition. This proposition specifies what is required; I call it the ‘required proposition’. For instance, if morality requires you to be kind to strangers, what is required of you is that you are kind to strangers. The required proposition is that you are kind to strangers. Any particular source issues a number of requirements. Since each can be

specified by a proposition, the whole set of requirements can be specified by a set of propositions.

We must allow for the possibility that the requirements you are under depend on your circumstances. Here is how I shall do that formally, using possible worlds semantics. There is a set of worlds, at each of which propositions have a truth value. The values of all propositions at a particular world conform to the axioms of propositional calculus. For each source of requirements *S*, each person *N* and each world *w*, there is a set of propositions $R_S(N, w)$, which is to be interpreted as the set of things that *S* requires of *N* at *w*. Each proposition in the set is a required proposition. The function R_S from *N* and *w* to $R_S(N, w)$ I shall call *S*'s *code* of requirements. Since I shall deal with only one source and one person at a time, I can usually drop the '*S*' and the '*N*' from the formula. The code is then the function *R* from *w* to $R(w)$. This formulation of the code allows the requirements you are under at different worlds to differ. In that way it allows them to depend on your circumstances.

Now we have requirements founded on a code, we can define a property that corresponds to the source of the code. You have this property when you satisfy all the requirements that the source puts you under. For example, you are rational – you have the property of rationality – when you satisfy all the requirements of rationality. (I use 'rational' to mean fully rational.) So you are rational at a world if and only each of the things that rationality requires of you at that

world actually obtains at that world. That is to say, the proposition that you are rational is true at a world *w* if and only if every proposition in the set $R(w)$ is true at *w*.

We can similarly define the property of being moral, of being prudent and so on. (I use 'moral' to mean fully moral, 'prudent' to mean fully prudent, and so on.) To generalize, I shall call the property that corresponds to a source *S* the '*S*-property'. In notation, I shall write it 'P_S'. *N* has the *S*-property at *w* – which is to say that P_SN is true at *w* – if and only if, for all *p* in $R_S(N, w)$, *p* is true at *w*.

The code comes first, and I have defined the corresponding property on the basis of the code. Not all propositions that are necessary conditions for having the property need be in the code. So, provided we stick to the source sense of 'requires', not all propositions that are necessary conditions for your being rational need be required of you by rationality.[6] Suppose, for instance, that a necessary condition for being moral is that you are alive. Morality need not require you, in the source sense, to be alive. On the other

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6 I first learnt this point from Sven Danielsson's 'What shall we do with deontic logic?'. Danielsson applies it to *ought* rather than *requires*. He says: 'There are weighty reasons for giving up the idea that we ought to do what we necessarily do if we do what we ought to do'.

hand, morality does require you, in the property sense, to be alive. It is seems unnatural to say that morality requires you to be alive, so this gives some support to my claim that the source sense is more natural than the property sense.

My formalization of requirements is extremely general. The set of required propositions at a world can contain any number of propositions, related together or not. So no logical relations among required propositions is implied by the formalization. We are therefore in no danger of running up against any of the well-known paradoxes of deontic logic.

But should we not expect there to be some logic of requirements? I am not sure we should, and if there is one, I would expect it to be weak. A *logic* of requirements should arise from the meaning of 'requires' alone, and I doubt that much of a logic does arise from that meaning. There may indeed be inferential relations among requirements, but they are more likely to arise from the substance of particular sources of requirements than from the meaning of 'requires'.

Take 'morality requires' for example. We have various substantive theories about what morality requires. One example is the broad theory that may be called 'maximizing teleology'. According to maximizing teleology, morality requires you to do the best act out of those that are available to you. So what morality requires of you depends on the goodness of alternative acts. That is to say, it depends

on an axiology. There will indeed be inferential relations of a sort between things that morality requires of you. For example there will be transitivity of a sort; if morality requires you to do *A* when the choice is *A* and *B*, and if morality requires you to do *B* when the choice is *B* and *C*, then morality requires you to do *A* when the choice is *A* and *C*. But most of theses inferential relations will arise from the substantive structure of the axiology, not from the meaning of 'requires'.

6. Axioms for requirements?

Still, I do not insist that there is no logic of requirements at all. If my semantics is to incorporate one, it will have to be injected directly into the semantics by imposing conditions on the structure of the code $R(w)$. I shall mention some examples.

We might inject the K axiom of modal logic. Applied to requirements, this is the axiom that:

> ((*S* requires of *N* that *p*) & (*S* requires of *N* that $p \varepsilon q$)) ε (*S* requires of *N* that *q*).

We could inject it by imposing on the code the condition that, for any world *w*, the set $R(w)$ is closed under inference by modus ponens. That is to say, whenever *p* and $p \varepsilon q$ are in $R(w)$, then *q* is also in $R(w)$.

I do not recommend injecting the K axiom. I find it intuitively unattractive. Here is an example that shows why. Suppose prudence

requires you to go to the office today, and it also requires you, if you go to the office today, to wear your suit. According to the K axiom, prudence requires you to wear your suit. But suppose that, despite what prudence requires, you are actually going hiking in the mountains today. In that case, intuition suggests that prudence does not require you to wear your suit. A suit will not keep you warm if the weather should deteriorate. So intuition suggests that the K axiom steers us wrong.

It is true that, if you do not wear a suit, you necessarily fail to do something that prudence requires of you: either you do not go to the office, or you do go to the office but do not wear a suit. So your failure to wear a suit entails that you are not prudent. Necessarily, if you do not wear a suit, you do not have the property of prudence. If we were reading ‘requires’ in the property sense, so that ‘prudence requires’ follows the model of ‘survival requires’, we would have to persuade ourselves that prudence requires you to wear a suit.

That does seem a peculiar claim to make when you are going hiking in the mountains. This adds further support to my claim that the property sense of ‘requires’ is not a natural one. At any rate, I am concerned with the source sense. Nothing suggests that wearing a suit is within the code of prudence. So in the source sense, prudence does not require you to wear a suit.

To generalize, suppose some source requires you to *F*, and requires you to *G* if you *F*. Suppose you do not *G*. The fact that you

do not *G* entails that you necessarily fail to satisfy one of the requirements you are under: either you do not *F*, or you do *F* but do not *G*. So the fact that you do not *G* entails that you do not satisfy one of the source's requirements. However, it does not follow that the source requires you specifically to *G*. Axiom K is unsatisfactory.

This axiom is the primary culprit in generating many of the paradoxes of deontic logic. We are better off without it. When applied to requirements, it does have a spurious attraction. It is an appropriate axiom for 'requires' in the property sense, and if we stick to that sense it will lead to no paradoxes. But read with the source sense it is not an appropriate axiom, and it leads to paradoxes.

Another axiom that might be injected is one that is often called 'inheritance'. It is that:

> ((*S* requires of *N* that *p*) & (*p* ε *q*) is logically valid) ε (*S* requires of *N* that *q*).

That is to say, if something is required, then all its logical consequences are required. This axiom is endorsed by Bas van Fraassen in his 'Value and the heart's command'. van Fraassen's semantics is in other respects like mine,[7] so this axiom seems worth considering. To inject it, we would impose on the code the condition

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7 As Krister Bykvist pointed out to me.

that, for any world w, if p belongs to $R(w)$, and if $p \varepsilon q$ is logically valid, then q belongs to $R(w)$.

Like K, the inheritance axiom leads to paradoxes. One is Ross's paradox.[8] Suppose prudence requires you to post the letter. Then according to inheritance, prudence requires you to post the letter or burn it. Therefore, if you burn the letter, you do something that prudence requires you to do. This is paradoxical.

There is no paradox if we read 'requires' in the property sense. That you post the letter or burn it is indeed a necessary condition for you to have the property of prudence. Necessarily, if you are prudent, you post the letter or burn it. That is just because, necessarily, if you are prudent, you post the letter. Any number of conditions are necessary for you to be prudent. For instance, all tautologies are necessary conditions. So for instance, necessarily, if you are prudent, you either post the letter or do not post it. You can satisfy a great many of these necessary conditions by doing imprudent things such as not posting the letter and burning the letter.

So reading 'requires' in the property sense should dispel the paradox. Nevertheless, it does seem paradoxical to say that you can satisfy one of the requirements of prudence by burning the letter.

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8 Ross, 'Imperatives and logic'.

This adds yet more support to my claim that the property sense of 'requires' is not a natural reading.

But in any case, it is not plausible that the code of prudence includes the requirement that you post the letter or burn it, so it is implausible that prudence requires you, in the source sense, to post the letter or burn it. The semantics for 'requires' in the source sense does not plausibly incorporate inheritance.

Lou Goble disagrees. He says:

> We might, for example, have a body of law; what the law requires reaches beyond the bare stipulations written in that body to include, one would think, also what those stipulations entail. If the law says there shall be no camping at any time on public streets, it does not seem much of a defense for a camper to plead that the law never said that there should be no camping on the streets on Thursday night.[9]

I agree it is not much of a defence, but I do not think the example supports inheritance. Suppose the law says there shall be no camping at any time on public streets. Suppose you camp on the streets on Thursday night. When you are arrested, you will be charged under the law that there shall be no camping at any time on public streets. You have no defence; you did indeed break this law. You will not be charged under a law that there shall be no camping on the streets on

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9 Goble, 'Normative conflicts and deontic logic'.

Thursday night because, so far as I can see, there is no such law. The code of law does not include the proposition that you do not camp on the streets on a Thursday night. So long as we hold tight to the source meaning of ‘requires’, we should not think the law requires you not to camp on the streets on Thursday night.

I think we should not inject the axiom of inheritance.

What about the axiom D:

(*S* requires of *N* that *p*) ε ¬ (*S* requires of *N* that ¬*p*),

which says that *S* issues no contradictory requirements? This would be injected by imposing the condition that, for any *w*, when *R*(*w*) contains *p* it does not contain ¬*p*. A stronger condition may also seem plausible: that *S* does not issue inconsistent requirements. That is to say, for any *W*, there is a *w*N such that every member of *R*(*w*) is true at *w*N.

I do not think any condition of this sort could be part of the meaning of ‘requires’, because there could surely be some sources that issue inconsistent requirements. For example, it would be remarkable if legislators did not occasionally make inconsistent laws. So if a condition of consistency is ever appropriate, that will be because of some particular feature of the source. I shall mention the example of rationality later.

7. A point to note

One consequence of my semantic scheme for *requirement* needs mentioning. Suppose the actual world is *w*. And suppose the requirements at this world are mutually consistent. Then there are worlds where all the requirements in *R*(*w*) are satisfied. Take one of these worlds *w*N. The requirements at *w*N are *R*(*w*N), and nothing says that all the requirements in *R*(*w*N) are satisfied at *w*N. Let me put this in counterfactual terms, taking the requirements of rationality as an example. As things are, rationality requires some things of you. If you were to satisfy all those requirements, you might not then satisfy all the requirements you would then (having satisfied them) be under. That is to say, you might not then have the property of rationality. So, even if you were to satisfy all the requirements of rationality, you might not then be rational.

This possibility arises because the requirements you are under may not be the same at all worlds. One way to remove it would be to insist that the requirements at all worlds are the same: that *R*(*w*) is the same at all *w*. But should we remove this possibility? Is it a problem?

It is not; it may be exactly what we should expect. Stick with the example of rationality. What rationality requires of you in your actual irrational state may not be what it would require of you if you were rational. Perhaps in your actual state you are prone to having irrational doubts about whether you have locked the door. Therefore, in your actual state, rationality might require you to ignore doubts of this sort when they occur, because they are likely to be irrational. On

the other hand, if you were rational, you would not be prone to irrational doubts. Consequently, rationality might require you to take notice of any doubts that do occur, because they will be rational. If you were to satisfy the requirement you are actually under, you would ignore doubts, but this is not what you would do if you were rational. This makes good sense.

8. Conditional requirements

The rest of this paper is about conditional requirements. Many requirements are conditional in some way. Prudence requires you to wear a warm coat, conditional on its being winter. Morality requires you to keep your promises, which means it requires you, conditional on your having promised to do something, to do it. Rationality requires you to intend appropriate means to any end that you intend, so it requires you to intend the means conditional on your intending the end. We need to ask in what precise ways a requirement can be conditional.

My semantics allows requirements to be conditional in more than one way. I shall use prudence as an example, to describe two of these ways. First, for some pair of propositions p and q, it may be the case that, at all worlds where p is true, prudence requires of you that q. That is to say, q belongs to $R(w)$ whenever p is true at w. Then at all worlds it will be the case either that not p or that prudence requires of you that q. In terms of a material conditional: at all worlds, if p, then

prudence requires of you that *q*. In symbols: *p* ε (Prudence requires of you that *q*). This is true at all worlds, and let us add to our semantics the assumption that what is true at all worlds is necessary. So we have that, necessarily, if *p*, then prudence requires of you that *q*. That is one way a requirement of prudence can be conditional: the existence of the requirement is conditional.

Another way is this. For some pair of propositions *p* and *q*, it may be the case that the material conditional proposition that if *p* then *q* is required of you at all worlds. That is: *p* ε *q* belongs to *R*(*w*) for all *w*. So, necessarily, prudence requires of you that if *p* then *q*. This the second way a requirement can be conditional: it has a conditional content.

When a requirement is conditional in the first way, what is required of you is the proposition *q*, whereas when it is conditional in the second way, what is required is the compound proposition that if *p* then *q*. I call the first a 'narrow-scope conditional requirement' and the second a 'wide-scope conditional requirement'.

Narrow-scope conditional requirements allow inference by modus ponens. From the premise that *p* together with the premise that, if *p*, then prudence requires *q*, we can derive by modus ponens the conclusion that prudence requires *q*. That is: from the premise that *p* together with the premise that prudence requires *q* conditional on *p* in the narrow-scope way, we can derive the conclusion that prudence requires *q*. This pattern of inference is known as 'factual detachment'

by deontic logicians. It is made valid, not by any specific logic of requirements, but by propositional calculus alone. On the other hand, detaching the conclusion that prudence requires *q* from a wide-scope conditional requirement could only be achieved through a specific logic of requirements. So far we have no such thing, so detachment from a wide-scope conditional requirement is not possible.

There can be other sorts of conditional requirements besides narrow-scope and wide-scope ones. One is like a wide-scope requirement in two respects: that its existence is not conditional – the requirement exists at every world – and that it has a conditional content. But the content may be something other than a material conditional. There are no doubt other possibilities too. But in the rest of this paper I shall concentrate on wide-scope and narrow-scope conditional requirements only. I shall try to compare their merits. Suppose we have some conditional requirement that is to be formulated in one of these two ways. On what basis should we choose between the formulations?

9. Properties associated with conditional requirements

This is a genuine choice. It is not as though one formulation will be definitely correct and the other incorrect. We are choosing between different precise meanings to assign ‘requires’ in the context. In this choice, one desideratum is to come as close as possible to the natural

meaning of the word. But we should also choose a meaning that is useful for philosophical purposes.

Less is at stake than one might think. The choice between the wide-scope and narrow-scope formulations makes no difference to the *property* that corresponds to the source of the requirement. The proposition that you are prudent is exactly the same, whichever way a conditional requirement of prudence is formulated. Either way, you are prudent at exactly the same worlds.

To put this more precisely, again using prudence as an example, take a code of prudence that contains a narrow-scope conditional requirement, and change that requirement to the corresponding wide-scope one, leaving the rest of the code unchanged. This means that, for some pair of propositions *p* and *q*, the original code includes *q* as a required proposition at all worlds where *p* is true, whereas the altered code includes $p \varepsilon q$ as a required proposition at all words. But in all other respects the two codes are the same. Then the proposition that you are prudent is unaltered by this change. That is proved in the appendix to this paper.

So, when you are under some conditional requirement that issues from a source *S*, we cannot decide between the narrow-scope and wide-scope formulations of the requirement by considering the circumstances in which you have the *S*-property. For example, when the source is prudence, we cannot settle the question by considering when you are or are not prudent

10. Inconsistent requirements

If the formulation makes no difference in this respect, what difference does it make? In the rest of this paper I shall run through some differences. On balance, they militate in favour of wide-scope as opposed to narrow-scope formulations. But I do not think they give conclusive grounds for choosing the wide-scope formulation for all conditional requirements.

The first difference is a matter of the consistency of requirements. Intuitively, it seems that some sources of requirements should not impose inconsistent requirements on you. But narrow-scope requirements are more prone to inconsistency than broad-scope ones are. This may give support to the wide-scope formulation for requirements that issue from those particular sources.

Rationality is perhaps one of those sources; it seems plausible that rationality should not issue inconsistent requirements. But if the conditional requirements of rationality have a narrow scope, inconsistent requirements seem inevitable. Here is an example.

I assume that rationality requires you not to have contradictory intentions: it requires you not to intend to do something and also intend not to do it. That is:

Rationality requires of you that (¬ (You intend to *F* & You intend not to *F*)).

This seems uncontroversial.

I also assume that rationality requires you to intend to do what you believe you ought to do. The state of believing you ought to do something whilst not intending to do it is akrasia, so I am assuming that rationality requires you not to be akratic. This is not so uncontroversial, but I shall make this assumption nonetheless. The requirement could be formulated in either the narrow-scope or the wide-scope way. Either:

(You believe you ought to *F*) ε Rationality requires of you that (You intend to *F*),[10]

or:

Rationality requires of you that (You believe you ought to *F* ε You intend to *F*).

Now, suppose you believe you are facing a deontic dilemma. That is to say, for some *F*, you believe you ought to *F* and also believe you ought not to *F*. Then, according to the narrow-scope formula,

Rationality requires of you that (You intend to *F*)

and

Rationality requires of you that (You intend not to *F*).

Put these two requirements together with the requirement that you do not have contradictory intentions, and we reach the conclusion that

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10 Niko Kolodny recommends the narrow-scope formulation in his 'Why be rational?'

the requirements you are under cannot all be satisfied together. This is a consequence of the narrow-scope formulation.

It does not mean you cannot be rational; the narrow-scope formulation does not have such a strong consequence as that. The requirements that apply to you as you are at the actual world cannot be satisfied together, but there may be other worlds where all the requirements that apply to you at those worlds are satisfied at those worlds. Still, we might think that rationality should not place you under inconsistent requirements. If so, we have to reject the narrow-scope formulation.

One point could be made in its defence. First, notice that, in my example, you are actually not rational. Since at the actual world you are under conflicting requirements, at least one of those requirements is inevitably not satisfied at the actual world. Therefore, at the actual world you do not have the property of rationality. This is not a consequence of the narrow-scope formula particularly. Even if we switched to the wide-scope formula we would reach the same conclusion. That is guaranteed by the theorem described in section 9: when a narrow-scope formula entails you are irrational, so does a wide-scope one. Either way, so long as you believe you ought to *F* and also believe you ought not to *F*, you are irrational.

This does not mean that rationality specifically requires you not to have this pair of beliefs. It means that if you have this pair of beliefs,

you must be failing to satisfy some requirement of rationality or other.

Given that you are irrational, we might be less bothered by the fact that rationality imposes inconsistent requirements on you. We might think that, given your irrationality, a conflict within rationality cannot be avoided. That is the point that could be made in defence of the narrow-scope formula.

But it is not a good one. Your being in an irrational state is no reason to expect rationality to impose conflicting requirements on you. When you are in an irrational state, we should expect rationality to require you to get out of it. The only way you can get out of it is to drop either your belief that you ought to *F* or your belief that you ought not to *F*. But these beliefs do not even figure in the requirements you are under according to the narrow-scope formula. So this formula seems particularly inappropriate.

The wide-scope formula avoids this complaint. According to it, rationality requires you either not to believe you ought to *F* or to intend to *F*, and it also requires you either not to believe you ought not to *F* or to intend not to *F*. Even when we add that rationality requires you not both to intend to *F* and intend not to *F*, it remains possible for you to satisfy all three requirements. One way to do so is by not believing you ought to *F*, another is by not believing you ought not to *F*. Doing one or the other is necessary to get you out of

your actual irrational state. So fulfilling the requirements you are under would at least contribute to your rationality to this extent.

I conclude that the wide-scope formula is more satisfactory than the narrow-scope one in this respect. To generalize, I think we should impose a particular constraint on the code of rationality. I think we should rule out conflicts within what rationality requires. We should impose the constraint that all the requirements of rationality that apply at any world can be satisfied together. That is to say, for rationality, for any world *w*, there is a world *w*N such that *p* is true at *w*N for all *p* in *R*(*w*). The example shows that narrow-scope requirements of rationality will inevitably violate this constraint. A code containing wide-scope conditional requirements may also violate it, but wide-scope requirements do not make a violation inevitable. This gives some support to wide-scope formulations of the conditional requirements of rationality.

In passing, I shall make one comment about *ought*. Suppose you are facing a deontic dilemma: you ought to *F* and you ought not to *F*. It would be extraordinary if this were so whilst at the same time you could not have good evidence that it is so. So let us also suppose you have good evidence that you ought to *F* and that you ought not to *F*. Since you have good evidence for these two facts, it must be possible for you to believe both of them and nevertheless be rational; it could not be that you are necessarily irrational just because you believe two facts that you have good evidence for. Yet I argued earlier in this

section that you cannot be rational and at the same time believe you are facing a deontic dilemma. I conclude that you cannot actually be facing a deontic dilemma.

This notable conclusion emerges from the requirements of rationality as I take them to be. It is a consequence of my two assumptions: first, that rationality requires you not to have contradictory intentions, and second, that rationality requires you to intend to do what you believe you ought to do. The consequence follows whether we adopt the narrow-scope or the wide-scope formulation of this second requirement. I think we should conclude that there are no deontic dilemmas. But I recognize the argument is surprising, and a different conclusion is possible.

11. The necessity principle

I am looking for criteria that might help us decide whether a requirement has a narrow or a wide scope. Now I come to a criterion that I think is given us by the meaning of 'requires'. It might therefore be considered part of the genuine logic of *requirement*.

I take it that, if rationality requires you to *F*, then, necessarily, you *F* if you are rational. If morality requires you to *F*, then, necessarily, you *F* if you are moral. And so on. In general, if a source *S* requires of *N* that *p*, then, necessarily, *p* if *N* has the *S*-property. Call this the 'necessity principle'.

I said in section 4 that ‘requires’ is inherently a modal word. I was there speaking of its property sense. To say that prudence requires you to *F* in that sense actually *means* that, necessarily, you *F* if you are prudent. I am now saying that ‘requires’ is inherently modal in its other, source sense too. In the source sense, there is a one-way entailment from ‘Prudence requires you to *F*’ to ‘Necessarily, you *F* if you are prudent’. If prudence requires you to *F*, you cannot be prudent unless you *F*. When ‘requires’ has the source sense, ‘Prudence requires you to *F*’ is a strictly stronger claim than it is when ‘requires’ has the property sense. The former entails the latter, but not vice versa.

The necessity principle is inconsistent with narrow-scope conditional requirements. Suppose you are under a narrow-scope requirement. Suppose, say, that if you jump from a plane, prudence requires you to have a parachute. Adding the necessity principle gives us that, if you jump from a plane, necessarily, if you are prudent you have a parachute. But that is false. You can perfectly well be prudent even if you do not have a parachute, so long as you avoid jumping from a plane. In general, the necessity principle together with a narrow-scope requirement will lead to a false conclusion. This is a problem for the narrow-scope requirement.

In section 4 I explained the standard solution to problems of this sort. It is to recognize that English does not always get the scope of ‘requires’ right. The sentence ‘If you jump from a plane, prudence

requires you to have a parachute' really means that prudence requires of you that, if you jump from a plane, you have a parachute. But this solution does not rescue narrow-scope requirements; it turns them into wide-scope requirements. The necessity principle rules out narrow-scope requirements. Since the necessity principle may fairly be considered part of the logic of 'requires', it constitutes an argument against all narrow-scope conditional requirements.

12. Asymmetry

When a wide-scope requirement holds, what is required of you is a material conditional proposition $p \varepsilon q$. We must be able to substitute logical equivalents within the scope of a requirement. So rationality also requires of you the contrapositive $\neg q \varepsilon \neg p$. Wide-scope requirements have this sort of symmetry.

But sometimes this symmetry seems wrong. Look at the wide-scope formulation of the anti-akratic requirement mentioned in section 10.

Rationality requires of you that (You believe you ought to *F* ε You intend to *F*).

Contraposing gives:

> Rationality requires of you that (You do not intend to *F* ε You do not believe you ought to *F*).

But the relation between believing you ought to *F* and intending to *F* is not symmetric. Here are some asymmetric features. It would be

rational to intend to *F* because you believe you ought to *F*, but irrational to disbelieve you ought to *F* because you do not intend to *F*. Likewise, it would be rational to ground an intention to *F* on a belief that you ought to *F*, but irrational to disbelieve you ought to *F* on the grounds that you do not intend to *F*.

Narrow-scope formulations are not symmetric in the way wide-scope ones are. So this may appear to give them some attraction in particular cases such as the anti-akratic requirement.[11] But merely switching to a narrow-scope formula does not address the real problem. It is not good enough just to introduce some asymmetry; it has to be the right asymmetry. The asymmetric features I described are to do with the way one attitude is explained by another, or grounded on another. This relation of explaining or grounding cannot be represented by a material conditional, so we shall not be able to capture the right asymmetry with the resources of either the wide-scope or the narrow-scope formula.

To take account of the asymmetry adequately, we shall need to go beyond either formulation. There are various options. One is to keep the wide-scope formula but add some further, asymmetric requirement. I have mentioned a second option already in section 8.

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11 In effect, this is Kolodny's case for the narrow-scape formula in his 'Why be rational?'.

It is to formulate the conditional requirement in a way that differs from the wide-scope formula, but resembles it in two respects. The first respect is that the existence of the requirement is not conditional; the requirement exists at every world. The second respect is that the requirement has a conditional content. The difference is that the content is some conditional other than a material conditional. To be asymmetric, it would have to be a conditional that does not contrapose. There may also be further options besides these.

I have not yet explored these options. But I think it is safe to conclude that asymmetry does not constitute a strong case for a narrow-scope formulation.

13. Wide or narrow scope?

However, intuition does provide a case, in some circumstances at least. There are good intuitive grounds in favour of some narrow-scope conditional requirements.

Here is one example. It seems very plausible that, if you are in Britain, the law requires you to drive on the left. The wide-scope formulation of this requirement would have it that the law requires of you that, if you are in Britain, you drive on the left. But that does not seem right. A wide-scope law like this would apply to everyone everywhere; it would require everyone everywhere to drive on the left if in Britain. But the law requiring you to drive on the left in

Britain is only a British law, and it is natural to assume that it applies only to people in Britain.

Intuition tells us that there are at least three different things you can do with a requirement. You can infringe it, you can comply with it or you can avoid it.[12] By driving on the right in Britain you infringe the British law. By driving on the left in Britain you comply with this law. By not being in Britain, you avoid this law. But according to the wide-scope formulation, in not being in Britain you actually comply with the law rather than avoid it. The wide-scope formulation collapses the distinction between compliance and avoidance. This is a serious intuitive failing.

On the other hand, if we adopt a narrow-scope formulation for this requirement, we shall come up against the necessity principle described in section 11. This principle together with the problem of inconsistency described in section 10 constitute a good case in favour of wide-scope formulations. But I have just explained that wide-scope formulations are sometimes intuitively unattractive.

So how should we choose between wide-scope and narrow-scope formulations of conditional requirements?

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12 Peter Vranas's 'New foundations for imperative logic' makes this point well.

Appendix

Theorem. Let R_S and $R\mathrm{N}_S$ be two codes that are the same except that, for one pair of propositions p and q, q 0 $R_S(N, w)$ for all w at which p is true (and this may not be so for $R\mathrm{N}_S$) whereas (p ε q) 0 $R\mathrm{N}_S(N, w)$ for all w (and this may not be so for R_S). Then P_SN (where P_S is the S-property) is true under R_S at exactly those worlds where it is true under $R\mathrm{N}_S$.

Proof. First, take a world w where P_SN is true under R_S. That is to say (by the definition of P_S), for all p 0 $R_S(N, w)$, p is true at w. I shall prove P_SN is also true at w under $R\mathrm{N}_S$. Since w satisfies all the requirements in $R_S(N, w)$, and since $R\mathrm{N}_S(N, w)$ contains all the same requirements apart from the single one that differs, w satisfies all the requirements in $R\mathrm{N}_S(N, w)$ apart from, possibly, that final one.

Either p is true at w or it is not. If it is, then q is in $R_S(N, w)$. Since P_SN is true at w under R_S, q is true at w. Therefore (p ε q) is true at w. On the other hand, if p is not true at w, then (p ε q) is automatically true at w. Either way, (p ε q) is true at w. But (p ε q) is the final requirement in $R\mathrm{N}_S(N, w)$. So w satisfies all the requirements in $R\mathrm{N}_S(N, w)$. P_SN is therefore true at w under $R\mathrm{N}_S$.

Next, take a world w where P_SN is true under $R\mathrm{N}_S$. I shall prove it is also true under R_S. Since w satisfies all the requirements in $R\mathrm{N}_S(N, w)$, and since $R_S(N, w)$ contains all the same requirements apart from

the single one that differs, w satisfies all the requirements in $R_S(N, w)$ apart from, possibly, that final one.

Because $(p \varepsilon q)$ is in $R\mathrm{N}_S(N, w)$, and $P_S N$ is true at w under $R\mathrm{N}_S$, $(p \varepsilon q)$ is true at w. Either p is true at w or it is not. If it is, then q is in $R_S(N, w)$: q is required at w according to R_S. And this requirement is satisfied; q is true at w because both p and $(p \varepsilon q)$ are true there. On the other hand, if p is not true at w, there is no final requirement in $R_S(N, w)$ to be satisfied. Either way, w satisfies all the requirements in $R_S(N, w)$. $P_S N$ is therefore true at w under R_S.

Notes

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