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A constitutive account of 'rationality requires'

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ABSTRACT

The requirements of rationality are fundamental in practical and theoretical philosophy. Nonetheless, there exists no correct account of what *constitutes* rational requirements. This paper attempts to provide a correct constitutive account of 'rationality requires'. I argue that rational requirements are grounded in 'necessary explanations of subjective incoherence', as I shall put it. Rationality requires of you to *X* if and only if your rational capacities, in conjunction with the fact that you not-*X*, *explain necessarily* why you have a non-maximal degree of subjective coherence.

Keywords: rationality, requirements, constitutive accounts, necessary conditions, normative reasons, objective and subjective coherence

Introduction

It is widely agreed that *rationality* issues norms, rules, or requirements. Like the law, morality, prudence, and possibly convention, rationality demands things of us. For example, if you intend to fly to Rome and you believe that a necessary means to fly to Rome is to buy an airline ticket, and yet you do not intend to buy an airline ticket, you will violate a requirement of rationality. You will not be entirely as rationality requires you to be.

Moreover, it is also commonly accepted that the requirements of rationality play a fundamental role in a theoretical and a practical sense. Rational requirements are practically fundamental as they are taken as providing us with a behaviour-guiding and justificatory standard of action and belief formation.

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Requirements of rationality are often thought of as contributing extensively to answering the questions 'What should I do?', 'What should I believe?', and 'How should I reason?'.

Theoretically, requirements of rationality are fundamental in that they are employed in the reduction and explanation of many philosophically significant concepts or phenomena. Here are a few examples: Michael Smith (1994) reduces the concept of a normative reason to what an agent who satisfies all rational requirements would desire. Donald Davidson (2001) employs norms of rationality to show that mental events are nomologically irreducible to physical events. Immanuel Kant (1788/1997) and subsequently Christine Korsgaard (1985) have sought to explain immorality as a breach of a rational requirement. David Gauthier (1986) premised his moral theory on rational requirements to keep agreements and to maximize utility in a constrained way. Christopher Cherniak (1981; 1986) treats rational requirements as playing a fundamental role in constituting agency. For agency to be ascribable to a subject, the subject must at least be disposed to reliably satisfy some basic requirements of rationality.

However, despite their significance, many important questions about rational requirements remain unanswered. We lack a *comprehensive theory* about the demands of rationality. Ideally, a comprehensive theory would achieve two things. On the one hand, it would answer our *first-order* questions about rational requirements. That is, what exactly does rationality require of us? Can I believe a contradiction and still be fully rational? Is it always irrational not to intend the means one believes to be necessary to one's intended end?

On the other hand, a comprehensive theory would answer our *second-order* questions about rational requirements: what do we mean by saying that

rationality requires something of us? In virtue of which of our properties are we subject to a particular requirement of rationality? Do we have normative reasons to satisfy the requirements of rationality? What can we say about the motivation of someone who judges that some act or belief would be rational or irrational? What is the relationship between the property of rationality and rationality as a system of requirements? How can we know what rationality requires of us? Do rational requirements the set the standard for correct reasoning?

This paper aims at contributing to the second part of a comprehensive theory of rational requirements. I shall attempt to answer perhaps the most fundamental second-order question a comprehensive theory of rational requirements should answer: *What makes it the case that a subject is under a particular requirement of rationality?*

Let me clarify this question by example. Suppose rationality requires you not to believe a contradiction. *That* you are subject to this requirement must hold in virtue of some particular features that are true of you. For instance, whether or not you had a haircut yesterday will presumably not affect the application of this requirement. But which features do affect the application of this rational requirement? Are you subject to this requirement in virtue of the fact that were you to believe a contradiction, you would not be fully coherent? Or does it apply to you in virtue of some of your cognitive capacities? Asked differently: what would need to be *false* of you for you to escape being subject to this requirement?

This paper aims to answer these fundamental questions via providing a *constitutive account* or *analysis*[2] of 'rationality requires'. Section 1 sets up some of the apparatus necessary to provide such an analysis. In particular, I shall formulate a 'general requirement', i.e. the most abstract formulation of a rationality requirement. Sections 2 to 4 explore, but ultimately dismiss, the idea of analysing 'rationality requires' in terms of *necessary conditions* for attitudinal coherence. Section 5 turns to another idea for analysing 'rationality requires' in terms of normative reasons. However, anticipating some recent arguments from John Broome and Niko Kolodny, I will argue that this type of analysis has no basis.

Section 6 turns to the core of this paper: what I proffer as a correct analysis of the requirements of rationality. Put roughly, I shall defend the view that 'rationality requires' is analysable in term of a *necessary explanation*: at a possible world *w*, rationality requires you to *X* if and only if, if you were as capable of rationality as you are at *w and* you were not to *X*, then this conjunction would explain necessarily why you are not fully coherent. Section 7

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[2] I shall use 'constitutive account' and 'analysis' synonymously in this paper. I am aware that this may be misleading. Analysing *X* is often taken as setting out the meaning of *X*. However, I will not use 'analysis' in this sense. Determining the *meaning* of 'rationality requires' is not part of my agenda in this paper. I also do not intend to give a *full* constitutive account of the requirements of rationality. That is, I shall not try to give an account of what a requirement of rationality *is*. My aim here is more limited. I seek to provide a general account of what *makes it the case* that one is subject to a particular requirement of rationality. This is what I shall refer to as a 'constitutive account' or 'analysis'. In addition, I shall refer to the activity of establishing a constitutive account as 'analysing'.

Furthermore, I will assume that a constitutive account or analysis can be stated in terms of necessitated and universally quantified bi-conditionals. For example, a constitutive account of being a brother may read as follows: necessarily, for all *X*, *X* is a brother if and only if *X* is male and *X* has a sibling.

Constitutive accounts or analyses can be *circular* or *non-circular*. They are *circular* if and only if the right-hand side of the bi-conditional refers to properties and relations that cannot be analysed without referring to properties or relations used in the left-hand side of the bi-conditional; they are *non-circular* if and only if the right-hand side of the bi-conditional refers to properties and relations that can be analysed without referring to properties or relations used in the left-hand side of the bi-conditional. If a correct constitutive account or analysis of *X* is non-circular, then we can say that it gives a *reduction* of *X*. It is my aim in this paper to draw up a non-circular constitutive account of 'rationality requires'.

closes this paper by providing an understanding of attitudinal coherence in the context of rational requirements.

1 The general requirement

Introducing this paper, I said informally that rationality issues requirements. First, a formal expression of what I mean by this: necessarily, for some worlds *w*, subjects *S*, and attitude proposition[3] *S Xs*, at *w*, rationality requires of *S* that *S X*s. Put plainly, by saying that rationality issues requirements I mean that there are contexts in which rationality requires something of certain subjects.

This formal characterisation makes precise what I will call a 'general requirement'.

> *General requirement* (GR). Rationality requires of *S* that *S X*s.

I call the *GR* a 'requirement', though, correctly speaking, the *GR* is not a 'requirement'; it is a requirement *schema* that can be turned into a requirement by replacing the schematic letters. I take the *GR* to be the most general (or schematic) expression of a schema for rational requirements. For simplicity, though, I will call the *GR* a requirement.

The chief question of this paper is this: how can we analyse the *GR*? How can we analyse the claim that rationality requires you not to believe the conjunction 'Oslo is the capital of Austria and it is not the case that Oslo is the capital of Austria'?

[3] By 'attitude proposition' I mean a proposition that ascribes a single attitude or a combination of attitudes (or their absence) to a subject. Examples are: Ingo wants a new job; Rainer does not believe that it is raining; Janice likes ginger if she believes that it comes from ecological farming; Daniel does not want to make plans about living in California permanently unless he believes that he will work on a vineyard; *etc*.

Two things need mentioning before I can outline my answer to this. Note that the assertion 'Peter is rational' can be used to express many different things. It may express that Peter possesses (one or more of) the properties of efficiency, effectiveness, prudence, sensibility, consistency, coherence, *etc*. Furthermore, it may also express that Peter is *capable* of having one or more of these properties; that is, Peter is capable of being efficient, effective, prudent, *etc*.

I assume that these properties represent different *types* of rationality. In this paper, however, I shall only be concerned with *one* type of rationality and its requirements. One way to identify this type is by looking at the *properties* a subject must possess in order to have a maximal degree of this type of rationality. Picked out in this way, I shall be concerned with the type of rationality one possesses if and only if one displays fully coherent attitudes. With regard to the requirements of rationality, this is to say that I shall only be concerned with rational requirements for which it holds necessarily that their satisfaction improves – in one way or another – the coherence among your attitudes.[4,5]

The next section discusses a first putative analysis of the *GR*. From now on, I will assume that the *GR* expresses a general requirement for a 'coherentist' type of rationality.

[4] I say 'in one way or another' because *X*-ing may improve: (i) the overall coherence among your attitudes, or (ii) the coherence among a specific set of your attitudes.

[5] As I explain in detail in section 7, I will assume that the type of attitudinal coherence relevant for rationality based on rational requirements consists in manifesting a disposition that is sensitive to the success conditions and constitutive aims of one's attitudes. For example, you are attitudinally incoherent if you have a pair of contradictory intentions despite your disposition to avoid contradictory intentions precisely because they cannot jointly fulfil their success conditions. I will say more on this type of coherence in section 7.

2 The necessary-condition analysis

This section explores (and rejects) the idea of analysing 'rationality requires' in terms of necessary conditions for possessing a particular property. I will begin with the idea of analysing the *GR* in terms of a subject possessing the property of *full rationality*.[6]

Andrew Reisner (2009: 257, n. 5). hints at such an analysis. He writes that '[…] rational requirements should express necessary […] conditions for rationality.' One way to employ this idea within an analysis of the *GR* is to say that what determines whether *S X*s is rationally required of *S* is whether *S X*s is a necessary condition for *S* to be fully rational.[7] Or more formally:

> *Necessary-condition-for-rationality analysis*. Necessarily, for all *S*, *S X*s, and *w*, at *w* rationality requires of *S* that *S X*s if and only if, at *w*, *S X*s is a necessary condition for *S* to be fully rational.

It is relatively easy to motivate this analysis. *'A* requires *B*' often expresses exclusively that *B* is a necessary condition for *A*. John Broome (2007a: 9), for example, claims that '"[s]urvival requires you to eat" means that your eating is a

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[6] For a brief discussion of an analogous 'necessary-condition account' of 'normative requirements', see Fink (2012: 128-9).

[7] There is a quick, yet ultimately unsuccessful, attempt at rejecting this view. To say that requirements of rationality specify necessary conditions for full rationality seems to suggest that one read 'requires' in 'rationality requires' as expressing the mere inverse of the necessary-condition relation. That is, if *A* requires *B*, then *B* is a necessary condition for *A*. However, 'requires' cannot be used in this way in 'rationality requires'. If rationality requires Janice to have another shower if she believes she ought to have another shower, we cannot express this by turning it into a binary necessary-condition relation such as 'Janice ought to have another shower if she believes she ought to have another shower is a necessary condition for rationality'. This is semantic and syntactical nonsense. Moreover, it is quite evident why this does not work. It fails to account for the fact that requirements 'belong' to someone (such as to Janice in the above example). In fact, ownership turns the 'requires relation' from a binary into a ternary relation.

This is not an argument against supposing that requirements of rationality specify necessary conditions for full rationality. The relation implied by a necessary condition does not have to be binary. It may be ternary instead. It is relatively unambiguous how to construe this ternary relation. When rationality requires you not to believe a contradiction, then not believing contradiction is a necessary condition for you to be fully rational. In general, at *w*, if *R* requires of *S* that *A*, then for *S* to have the corresponding property of *R* at *w*, *A* is a necessary condition at *w*.

necessary condition for your possessing the property of survival. It means that, necessarily, if you survive you eat.'

However, there are good reasons to reject the *necessary-condition-for-rationality analysis* as inadequate. First, as my argument towards the end of this section implies, the bi-conditional statement of the *necessary-condition-for-rationality analysis* is false. Not everything that is a necessary condition for full rationality is required by rationality. Second, the bi-conditional is probably unfit to represent a non-circular analysis of the *GR*. Arguably, there is no understanding of the property of rationality that is prior to an understanding of the *GR*.[8]

The following analogy may support this point.[9] Like rationality, the law too allows us to construe a graded property. As you can be more rational or less rational, you can be more legally compliant or less legally compliant.

What makes it the case that one possesses the property of full legal compliance? Whichever answer will be correct, it seems inevitable that a correct answer will rely on the notion of a legal requirement. Thus, 'legal requirement' seems to be a necessary part of a correct analysis of full legal compliance. An understanding of legal compliance cannot be prior to an understanding of legal requirements.

If the same holds true for the property rationality and the requirements of rationality, the *necessary-condition-for-rationality analysis* cannot serve as an appropriate analysis of the *GR*. It cannot give us a non-circular analysis of the *GR*.

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[8] I would like to thank a number of anonymous referees for emphasising this point. It has led to a major amendment of the presented arguments.

[9] Many thanks to an anonymous referee of *Erkenntnis* for putting forward this analogy.

Indeed, I know of no quick argument that rejects the circularity of *necessary-condition-for-rationality analysis*. Consequently, I shall not continue to examine it. Instead, will instead focus on a cognate analysis that remains immune to the charge of circularity.

The present paper is about a particular type of rationality and its requirements. As stated in section 1, these requirements deal with attitudinal coherence: rationality requires you to *X* only if by *X*-ing you, in one way or another, improve the coherence among your attitudes.[10] Let us account for this idea in creating an analysis of the *GR*.

Niko Kolodny (2005: 511) alludes to such an analysis: '[…] it is relatively clear how we might settle questions about what rationality requires; it requires whatever is necessary for coherence.' In short, what determines whether *S X*s is rationally required of *S* is whether *S X*s is (a) necessary (condition) for coherence among *S*'s attitudes ('attitudinal coherence'). Or more formally:

> *Necessary-condition-for-coherence analysis*. Necessarily, for all *S*, *S X*s, and *w*, at *w* rationality requires of *S* that *S X*s if and only if, at *w*, *S X*s is a necessary condition for *S* to be fully attitudinally coherent.

This analysis avoids the charge of circularity. An understanding of attitudinal coherence does not presuppose an understanding of 'rationality requires'. Moreover, this analysis satisfies another *desideratum* of rational requirements. It ensures that rational requirements remain 'local' and are not 'global' requirements. That is, rationality requires us '[…] avoid or resolve some specific

[10] Again, I say 'in one way or another' because one's *X*-ing may improve: (i) the overall coherence among one's attitudes, or (ii) the coherence among a specific set of one's attitudes.

conflict among one's attitudes – as opposed to, say, to satisfy some global constraint on all of one's attitudes' (Kolodny 2005: 516).[11]

Nonetheless, the *necessary-condition-for-coherence analysis* does *not* give us a correct analysis of 'rationality requires'. What rationality requires is not necessarily equivalent to a necessary condition for full attitudinal coherence.

Various philosophers suggest that if you violate a requirement of rationality, then this will have 'evaluative consequences' for you. For example, Tim Scanlon (2007) suggests that by violating a requirement of rationality you display a *functional defect*.[12] Kolodny (2005: 555-60) advocates the view that, if a violation of such a requirement is called to your attention, you must *come to evaluate that you have conclusive reasons* not to fail to do what you believe you ought to do.[13] Personally, I am inclined to think that the violation of a requirement of

[11] 'Locality' is a desideratum of rational requirements because it ensures that rational requirements reflect our ordinary judgments and attributions of irrationality (cf. Kolodny 2005: pp. 515-6). To show how the *necessary-condition-for-coherence analysis* preserves locality, considering a 'preface-paradox' type situation. Suppose you believe the conjunction of all assertions in one of your authored books. Yet, at the same time, you also *dis*believe this conjunction. You thus end up with two beliefs whose conjoined contents form a contradiction. Avoiding the combination such beliefs is, I assume, a necessary condition for being fully attitudinally coherent. The *necessary-condition-for-coherence analysis* thus entails that rationality requires you not to have such a combination of contradictory beliefs.

This holds even when, for instance, you have excellent evidence for both beliefs. Suppose you have checked every assertion in your book and found no error. Yet knowing about your fallibility, you also have excellent evidence that it is not the case that every assertion will hold true. Given your evidential position, it might be *more* (perhaps even *most*) coherent for you to continue believing the two contradictory contents. But even so, the *necessary-condition-for-coherence analysis* does not 'cancel', as it were, the requirement not to have the two contradictory beliefs in question.

[12] Joseph Raz (2005: 19) puts it like this: 'Rationality consists in part in proper functioning. People who fail [for example] to pursue the means to their ends display or manifest a form of malfunctioning criticisable as a form of irrationality.'

[13] See also A.W. Price (2008: 86). Surely, if you are severely irrational, you may not come to believe this. One may argue instead that you must be *disposed* to believe that you have conclusive reasons.

rationality puts you into a situation where, from 'a rational point of view', you could be *subjected to warranted criticism*.[14]

I am convinced that at least one of these views will turn out to be correct. Apply this to an analysis on which what rationality requires of a subject is equivalent to whatever turns out to be a necessary condition for *S* to be fully attitudinally coherent. Consider a list of necessary conditions for *S* to be fully attitudinally coherent at *w*. This list will include properties like 'being alive', 'having a mind', 'thinking with propositions', 'being spatially extended'. No subject can have a property of attitudinal coherence without the listed properties. It would be bizarre to think that because *S* lacks one of these properties, *S* suffers from a *functional defect*, or *S* must come to *evaluate* that *S* has conclusive reasons to have (any of) these properties, or that *S* could be subjected to *warranted criticism*. Consider a carpet, for instance. None of this could ever apply to a carpet in virtue of not being alive, or having no mind, *etc*., and yet these are evidently necessary conditions for a carpet to be fully attitudinally coherent in *any* context.

Here is a further inadequacy of the *necessary-condition analysis*. *Everything* would be subject to rational requirements: carpets, shoes, lighthouses, *etc*. We can identify necessary conditions for full attitudinal coherence for all these things. Surely, this would be an absurd outcome. Carpets, shoes, lighthouses are clearly *not* subject to any requirements of rationality. We should refrain from

[14] '[W]e ought … to use 'irrational' in its ordinary sense, to express strong criticism of the kind that we also express with words like "foolish", "stupid", and "senseless"' (Parfit 2011: 114).

interpreting the requirements of rationality as specifying necessary conditions for attitudinal coherence.[15]

3 Necessary-condition implication

This may not be the end altogether for the *necessary-condition-for-coherence* line of analysis. A *weakened* version may still be correct. Instead of supposing that the *GR* is equivalent to '*X* is a necessary condition for *S* to be fully attitudinally coherent', the *GR* may only *entail* '*X* is a necessary condition for *S* to be fully attitudinally coherent'. Though this will not give us a complete analysis of the *GR*, it may still be part of a correct analysis.

> *Necessary-condition-for-coherence implication*. Necessarily, for all *S*, *S X*s, and *w*, if rationality requires of *S* that *S X*s at *w*, then *S X*s is a necessary condition at *w* for *S* to be fully attitudinally coherent at *w*.

I read this as follows: take all contexts in which, for example, rationality requires of Anna that Anna believes that the cat is on the mat if she believes she knows that the cat is on the mat. Then, in all these contexts, 'Anna believes that the cat is on the mat if she believes she knows that the cat is on the mat' will be a necessary condition for Anna to be fully attitudinally coherent.

Many philosophers support (a cognate version of) the *necessary-condition-for-coherence implication*.[16] I, however, dispute its correctness. To show why, I need to provide a better understanding of the *necessary-condition-for-coherence implication*'s consequent:

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[15] I have discussed this and the previous point in Fink (2012: 129). Mathias Sagdal objects to me that computers, and other organisms or systems, might also be rational. If so, 'having a mind', 'being alive', *etc*. may not turn out to be necessary conditions for being rational. But this is not problematic for the point I wish to make here; it just changes what belongs on a list of necessary conditions for rationality.

[16] See, for example, Broome (2013a), Kolodny (2005: 511), Reisner (2009: 257, n. 5).

> *Necessary-condition-for-coherence implication's consequent*. At *w*, *S X*s is a necessary condition, at *w*, for *S* to be fully attitudinally coherent.

In order to uphold the *necessary-condition implication-for-coherence* we need a *plausible* interpretation of the *necessary-condition-for-coherence implication's consequent* that is implied by the *GR*. But there is none. In fact, only *im*plausible interpretations of the *necessary-condition-for-coherence implication's consequent* are so implied. That is why the *GR* does *not* imply necessary conditions for being fully coherent – or so I argue.

First, let's take an *im*plausible interpretation of the *necessary-condition-for coherence implication's consequent* that *is* implied by the *GR*. According to Albert Blumberg (1976: 133-4), and Jaakko Hintikka and James Bachman (1991: 328), necessary conditions can be read as *material conditionals*. That is, *A* is a necessary condition for *B* if and only if *B* materially implies *A*. Accordingly, on this *material analysans*, the *necessary-condition implication's consequent* can be read as:

> *Material analysans*. At *w*, if *S* is fully attitudinally coherent, then *S X*s,

where the 'if…, then…' is read as a material conditional.

However, this cannot be a correct *analysans* of the *necessary-condition-for-coherence implication's consequent*. Suppose at w_1 *S* is *not* fully attitudinally coherent. This guarantees the truth of the *material analysans* for *any* 'S Xs' at w_1. So, '*S* plays tennis' turns out to be a necessary condition for *S* to be fully attitudinally coherent at w_1. This is clearly ludicrous. Next, suppose at w_2 *S* is fully attitudinally coherent *and S* is blond. As this guarantees the truth of 'if *S* is fully attitudinally coherent, *S* is blond', 'being blond' turns out to be a necessary condition for *S* to be fully attitudinally coherent. In fact, *everything* that is *true of*

S at w_2 would count as a necessary condition for *S* to be fully attitudinally coherent. This is equally ludicrous. We definitely cannot read the necessary condition in *necessary-condition-for-coherence implication's consequent* as a *material* conditional.

Nevertheless, the *GR* evidently *implies* the *material analysans*. That is, necessarily, rationality requires of *S* that *S X*s at *w* only if, at *w*, if *S* is fully attitudinally coherent, then *S X*s. Put colloquially, whenever rationality requires of Peter that he does not believe a contradiction, then, if Peter is fully attitudinally coherent, Peter does not believe a contradiction. No doubt, this will be a *minimum* condition of the requirements of rationality. Nothing is rationally required of you unless it is implied of you if you are fully attitudinally coherent.

I now turn to two *plausible* interpretations of the *necessary-condition-for-coherence implication's consequent*. Neither of them is implied by the *GR*, however.

First, take the '*strict analysans*' interpretation. Accordingly, a necessary condition expresses a *strict* (or *necessary*) *conditional*. Expressed generally, *A* is a necessary condition for *B* if and only if necessarily, if *B* then *A*. So,

> *Strict analysans.* Necessarily, if *S* is fully attitudinally coherent, *S X*s.

This is a plausible reading of the *necessary-condition-for-coherence implication's consequent*. I am sure there is a type of necessity for which it holds that *A*-ing is a necessary condition for your being fully attitudinally coherent if and only if, in all possible contexts in which you are fully attitudinally coherent, you *A*.

Admittedly, you may not share my certainty about this. You may think that the *strict analysans* is too strong a reading of the *necessary-condition*

implication's consequent. So, perhaps you will be satisfied with the '*counterfactual analysans*' of the *necessary-condition implication's consequent*. In general, suppose *A* is a necessary condition for *B*. Maybe that reads as 'If *B* were true, *A* would be true too'. Accordingly, the *necessary-condition implication's consequent* reads as follows:

> *Counterfactual analysans*. At *w*, if *S* were fully attitudinally coherent, *S* would *X*.

Again, I think it is an arguable analysis of ''*S X*s' is a necessary condition for '*S* is fully attitudinally coherent'". However, neither the *strict* nor the *counterfactual analysans* are implied by the *GR*. The next section explains why.

4 Requirements, capacity, and modal fragility

Suppose Lena is a newborn human. She is just equipped with the average cognitive abilities of a newborn child. Could Lena be subject to requirements of rationality?

On the face of it, your answer to this might be 'yes'. As Lena is presumably in possession of some attitudes, why not suppose that Lena and her attitudes are subject to requirements of rationality?

Here is why not. Recall the *evaluative consequences* of violating a requirement of rationality I described in section 2. I said violating a rationality requirement either: (i) implies a functional defect; (ii) pushes one towards evaluating that one has conclusive reason to do whatever will satisfy the requirement; or (iii) warrants rational criticism.

Assume now that being subject to a requirement presupposes the possibility of violating it. That is, if rationality requires you to *A*, then it is possible for you to

not-*A*. So, if Lena is subject to a requirement of rationality, it must be *possible* that at least one of the evaluative consequences will apply to her. But this does not seem to be a tangible possibility. Of course, Lena could suffer from a functional defect. But it would not be one of a *rational* kind. Furthermore, Lena could not be pushed towards evaluating that she has conclusive reason to do something – for a newborn, I assume, does not possess the concept of 'conclusive reason'. Last, Lena could also not receive warranted criticism. I guess the capacity to receive such criticism presupposes some kind of understanding of it.

Consequently, newborn Lena will not be subject to any requirements of rationality. But, in all likelihood, this will only be so temporarily. Normally developed human beings are under requirements of rationality. If Lena develops normally, there will be a point where rationality requires things of her. In fact, I assume this be so when Lena has gained a certain level of *rational capacity*. This, in turn, will depend on her *cognitive abilities*.

If this is correct, it implies that the common theoretical treatments of rational requirements are insufficient. Commonly, theories of rationality are chiefly concerned with: (i) the (nature of the) *content* of rationality requirements; (ii) their relationship to *normative reasons*; and (iii) their nexus with *reasoning*.[17] However, these theories ignore,[18] or crudely simplify,[19] the *conditions* under which a requirement of rationality *applies* to a subject. In particular, they ignore

[17] See Broome (2007a; 2007b; 2007c; 2013a), Kolodny (2005; 2007), Reisner (2009).

[18] In these early writings on rationality, John Broome ignored the question of when a particular requirement of rationality applies to particular individuals. Implicitly, the requirements of rationality applied to *everything*. However, Broome (2007a, p 38) recognised this as a problem when realising that this entails that requirements can only be satisfied or violated, but not *avoided*. In his *Rationality Through Reasoning* (2013a) he changed his view so that *all* such requirements apply to those who are capable of rationality.

[19] Kolodny (2005; 2007) and Schroeder (2004) present such crude simplifications.

the relationships that hold between a subject's *cognitive abilities*, her *rational capacity*, and the application of requirements of rationality. Elucidating these relationships is not part of the research programme on rationality.

In the remainder of this section, I will try to investigate some of this unexplored territory. In particular, I shall say something about the relationship that holds between the *application* of a requirement of rationality and a subject's *rational capacity*.[20] This will lead to an argument that the *strict* and the *counterfactual analysans* fail to be implied by the *GR*. In section 6, I will then give some examples of the relationship that holds between a subject's *cognitive abilities* and her *rational capacity*.

I suppose that the application of every individual requirement of rationality presupposes the possession of a rational capacity. Or slightly more formally:

> *Capacity-requirement condition*. Necessarily, for all requirements of rationality *R*, subjects *S*, and worlds *w*, *R* applies to *S* at *w* only if, at *w*, *S* possesses a capacity of rationality.

That is, a necessary condition for being subject to a requirement of rationality is to have some capacity for rationality. But why not think of rational capacity as being *sufficient* for any requirement to apply? This is because I think that different requirements require different capacities.

Consider the, admittedly highly artificial and (over)simplified,[21] example of Jack and Jill. Suppose Jack, on the one hand, is very good at grasping the concept

[20] Like moral or legal blameworthiness requires moral or legal culpability, I assume that 'rational blameworthiness' requires rational culpability, which, I take it, consists in one's rationality capacity. That is, you can be rationally liable for having or lacking a certain pattern of attitudes (in virtue of being subject to certain rational requirements) only if you are in possession of a rational capacity that includes some kind of a (perhaps dispositional) understanding why a certain pattern of lack of attitudes constitutes an incoherence among your attitudes.

[21] This example is likely to be oversimplified, as an understanding of means-relations requires some conceptual grasp of truth. But, for the sake of simplicity, I will ignore this complication.

of truth, but very bad at understanding means-end relations. Jill, on the other hand, is very good with means-end relations, but cannot make sense of the concept of truth. I assume that 'being good with truth' will imply some rational capacity, and so will 'being good with means-end relations'. Furthermore, assume that one must be good with truth to be rationally required not to believe contradictions. Also, one must be good with mean-end relations to be rationally required to intend the means one believes to be necessary to one's intended ends. Thus, though Jack will be rationally required not to believe contradictions, he will not be rationally required to intend the means he believes to be necessary to his ends. Contrarily, Jill will be rationally required to intend the means she believes to be necessary to her ends; yet she will not be required not to believe contradictions. Jack and Jill end up being subject to different requirements of rationality. This is why one's possession of a specific capacity of rationality does not necessarily suffice to make one subject to every requirement of rationality.

I now turn again to the *GR* and the *strict* and *counterfactual analysans*. At the end of section 3, I asserted that the *GR* neither implies the *strict analysans* nor the *counterfactual analysans*. The *capacity-requirement condition* allows me to explain why. First, I take rational capacities to be *contingent*. That is, the features in virtue of which a subject possesses a certain rational capacity are not a necessary part of this subject. Lena's example confirms this: rational capacity is something one can gain or lose. To strengthen this claim, here is another example.

Suppose Fiona, a normally developed adult human being, possesses certain rational capacities. Suppose her capacities constitute themselves in an agglomeration of her logical skills, her understanding of concepts like 'truth' and

'falsity', her ability to understand causal relations, and her skills in applying probabilities to propositions, *etc*. Because of her cognitive abilities, Fiona finds herself subject to a number of requirements of rationality. Suppose now that among the requirements Fiona is subject to, there is one requirement, call it *R*, that presupposes *all* of the rational capacities that Fiona possesses.

Assume now that, unfortunately, Fiona suffers from a terrible stroke. As a consequence of this, she is no longer able to, say, reliably draw some of the inferences she was easily able to draw before her stroke. Further, Fiona is also no longer able to make calculations with rational numbers, and she does not understand why causes precede their effects. Surely, Fiona is less capable of rationality than she was before her stroke. Consequently, Fiona will not be subject to *R* anymore. Rationality will require less of her after her stroke than it did before.

This illustrates what I shall call the 'modal fragility' of requirement of rationality. It does not take large (or impossible) changes to a context in which you are subject to a requirement to ensure that you become no longer subject to this requirement. Recall now the *strict analysans* of the *necessary-condition analysis's consequent* on page 14. It analyses 'at *w*, "S Xs" is a necessary condition for *S* to be fully attitudinally rational' in terms of 'Necessarily, if *S* is fully attitudinally coherent, then *S X*s'. That is to say, if, in one context, rationality requires of *S* that *S X*s, then *S X*s in *all* contexts in which *S* is fully attitudinally coherent rational, i.e. in which *S* satisfies all of the requirements she is under. But the modal fragility of the requirements of rationality denies this strict conditional. There might be a context in which *S* is simply not under the requirement to *X*. In that context, *S* does not have to *X* in order to be fully

attitudinally coherent.[22] That is, *S* does not have to *X* to satisfy all requirements *S* is under. Consequently, the *GR* does *not* imply the *strict analysans*.

The 'modal fragility' of rational capacity also shows the *GR* not to imply the *counterfactual analysans* (see page 15). Following David Lewis, I assume 'If *S* were fully attitudinally coherent, *S* would *X*' is true at a possible world *w* if and only if there is at least one world, say *w**, where *S* is fully attitudinally coherent and *S X*s, and *w** is more similar to *w* than any world where *S* is attitudinally coherent, yet *S* does not *X*.[23] In other words, to arrive at a world where *S* is fully coherent *and S X*s from *w*, we must depart less from *w* than we would in order to arrive at a world where *S* is fully coherent, yet it is not the case that *S X*s.

Allow me to keep the notion of 'similarity' and 'departure' intuitive. Consider again Fiona's example where, prior to her stroke, Fiona was subject to rationality requirement *R*. As the example showed, Fiona does not necessarily possess the rational capacity required for being under *R* in all nearby worlds in which Fiona is fully coherent. That is to say, a world where Fiona possesses the property of full coherence but is *not* subject to *R* could be closer to a world where she is fully coherent *and* is subject to *R*. In general, sometimes it will be 'easier' to lose the capacity necessary for being subject to a requirement of rationality *R*, than to be subject to *R* and to satisfy it. At least, I see no argument excluding this possibility. This shows that *counterfactual analysans* is thus not implied by the *GR*.

In sum, none of the *plausible* interpretations the *necessary-condition analysis's consequent* are implied by the *GR*. They can thus not be a part of a constitutive account of the *GR*. Only the *material analysans* is implied by the *GR*.

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[22] I assume a subject *S* is fully rational in a certain context *c* if and only if *S* satisfies all requirements of rationality that apply to *S* in *c*.

[23] David Lewis (1973).

However, this does not suffice for conceiving the requirements of rationality as specifying necessary conditions of full rationality.

The upshot may be surprising: the requirements of rationality do *not* necessarily specify fully-fledged *necessary conditions* for being *fully coherent*. When rationality requires you to *X*, it is possible that *X*-ing is not a necessary condition for being fully coherent. Instead, losing some of your rational capacity may also make you fully coherent. If so, there is a context in which you are fully coherent without *X*-ing, though, in another context, rationality requires you to *X*. Though rational requirements entail strict liability relative to your rational capacity, they elide from strict liability across possible worlds where your rational capacity may vary.

5 'Rationality requires' and reasons

Thus far, I have examined interpretations of the requirements of rationality that read 'rationality requires' as expressing a necessary condition. My discussion established that in all contexts in which rationality requires you to *A*, it holds that, if you are fully attitudinally coherent, you *A*. (Compare the *material analysans* on page 13.) However, the converse implication does not hold. The *material analysans* can thus not serve as an analysis of the *GR*. Consequently, the *GR* must express more than the point that possessing the property of full coherence in a particular situation implies materially that one does whatever rationality requires in that situation. Put succinctly, what 'rationality requires' and what is required for being coherent are not the same thing.

What could this *additional* meaning consist in? In fact, 'requires' is often used to express a *normative* fact or relation. It is often used to express a *normative reason* or an *ought.*

Surely, there are requirement systems for which this holds. I assume that if morality requires you to donate a part of your income, then you have a normative reason to donate a part of your income. Likewise, if prudence requires you to *not* donate a part of your income, then you have a reason *not* to donate part of your income. However, there are systems of requirements that do not issue reasons. Arguably, if chauvinism requires you to adopt a set of self-righteous attitudes, there may be no reason for you to adopt this set of attitudes.

On which side do the requirements of rationality come down? Is it normative like morality and prudence, or non-normative like chauvinism?

I have argued elsewhere, however, that rationality is only *partially* normative (Fink ms). Only some requirements of rationality imply necessarily that you have a reason to satisfy them. In particular, this holds for the rational requirement for one to intend to do what one believes one ought to do. But I can offer no sound argument that this kind of normativity extends to other requirements too.

However, to use normative reasons in the analysis of the *GR*, it must necessarily hold for *each and every* requirement of rationality that you have a reason to do what rationality requires of you. More precisely, it must hold that, necessarily, if, at *w*, rationality requires of *S* that *S X*s, then, at *w*, *S* has a reason to *X*. But, again, I am not able to substantiate this claim with an argument. So, I cannot help myself to such an analysis.

Nevertheless, there might still be a *counterfactual* relationship between 'rationality requires' and reasons. For example, rationality may require something of you in one context if and only if, in some *nearby* context, you have (most, conclusive, or perfect) reason to *A*.

In his 'Rationality and reasons', Derek Parfit hints at such a theory:

> What do we have most reason to want, and do? […] What is it most rational for us to want, and do? […] While reasons are provided by the facts, the rationality of our desires and acts depends instead on our beliefs. When we know the relevant facts, these questions have the same answers. But if we are ignorant, or have false beliefs, it can be rational to want, or do, what we have no reason to want, or do. Thus, if I believe falsely that my hotel is on fire, it may be rational of me to jump into the canal. But I have no reason to jump. I merely think I do. And, if some dangerous treatment would save your life, but you don't know that fact, it would be irrational for you to take this treatment, but that is what you have most reason to do. (Parfit 2001: 17)

Note that Parfit only talks about a *property* of rationality here. In particular, he talks about the 'the rationality of our desires and acts'. Let us assume, in an extrapolative spirit, that Parfit's view can be developed into an account of what rationality requires of us. It may thus allow us to construe a *counterfactual analysis* of the *GR*. We may perhaps analyse the *GR* counterfactually:

> *Counterfactual-reasons analysans*. If *S*'s non-normative beliefs were true, *S* would have most reason to *X*.

That is, for example, rationality requires you not [to intend to *A* and to intend to not-*A*] if and only if you would have most reason not [to intend to *A* and to intend to not-*A*] if your non-normative beliefs were true.

However, I doubt that this counterfactual can analyse the *GR*. First, the counterfactual analysis limits the application of some possibly central rational requirements in an implausible way. In particular, it restricts the application of rational requirements that aim at establishing coherence between *normative beliefs* and *intentions*.

Suppose you accept, as it is commonly done, that a normally developed person is not entirely as rationality requires her to be if she fails to intend to do

what she believes she ought to do.[24] If so, you will, I assume, need to accept one of the two following formulas: (i) if you believe you ought to *A*, then rationality requires you to intend to *A*; (ii) rationality requires of you that [if you believe you ought to *A*, then you intend to *A*]. If you think that (i) is correct, then you hold that ought-beliefs *entail* rational requirements on intentions. If you think that (ii) is correct, you commit yourself to the view that rationality requires you [either not to believe that you ought to *A* or to intend to *A*].

I argue that the counterfactual analysis is incompatible with a plausible interpretation of both (i) and (ii). To begin, the counterfactual analysis excludes that (i) can be interpreted as expressing a *strict* or *necessary* entailment.[25]

The following example illustrates this: suppose you are in London and you believe that you ought to take the 1.45pm train to Oxford. You arrive at this belief via deliberating about a lecture that you wish to deliver in Oxford at 4.15pm. But suppose that due to a lapse in your reasoning you never form an intention to take the 1.45pm train. Furthermore, suppose that you also believe that your mother lies in hospital and there is a high chance that she will not survive until the next day. Yet you neither form a belief that you ought to visit her nor an intention to do so.

If your non-normative beliefs were true, let us assume, you would have most reason to stay in London and visit your mother. Thus, it would not be the case that you ought to take the 1.45pm train to Oxford. The counterfactual analysis

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[24] Cf., for example, Broome (2013b; 2007c; 2007d), Kolodny (2005; 2007) Raz (2005). This statement simplifies things, however. For example, I assume that a normally developed person is not entirely as rationality requires her to be if: (i) she believes that ought to A; (ii) fails to intend to A; and also (iii) believes that bringing about A is up to her (i.e. she believes A will not happen if it is not herself who brings about A). John Broome's (2013b) provides an excellent discussion on further restrictions concerning the 'enkratic' requirement of rationality.

[25] Kolodny (2007) supposes that (i) (or a cognate formulation) represents a necessary entailment.

implies that the entailment expressed in (i) does not hold true necessarily. In the described situation, your belief that you ought to take the 1.45pm train to Oxford does not entail that rationality requires you to intend to take the 1.45pm train to Oxford. You can believe that you ought to take the 1.45pm train to Oxford and not intend to do so, yet still be entirely as rationality requires you to be. In consequence, if (i) is correctly read as a necessary conditional, the counterfactual analysis cannot be correct.

However, you may not conceive of (i) as a necessary conditional. That is, merely believing that you ought to *A* does not strictly suffice to guarantee that rationality requires you to intend to *A*. Some extra conditions need to be fulfilled for (i) to hold true. For example, perhaps you think that your ought-beliefs entail rational requirements on intentions only if your ought-beliefs are supported, or at least not contradicted, by your evidence. Or you may think that they need to be epistemically justified, the consequence of a correct reasoning process, or not be grossly irrational.[26] So, in principle, you may welcome that the counterfactual analysis restricts the entailment expressed by (i) modally.

But does the counterfactual analysis restrict (i) in the right way? I do not think so. Suppose, at *w*, you have most reason to *A* and hence you ought to *A*. Suppose that, at *w*, the fact that both *p* and *q* make it the case that you have most reason to *A*. However, neither *p*, nor *q*, on its own, would make it the case that you have most reason to *A*. Suppose you believe *p*, yet you are ignorant of *q*. You have evidence for *p* but no evidence for *q*. As (believing) *p*, say, poses

[26] Ralph Wedgwood makes an analogous proposals for beliefs about an option's goodness that ensure that a choice is rational. He writes (2003: 203) that '… a choice is rational just in case the agent *believes* that the option chosen is (in the relevant way) a good thing to do. But this would not be a very plausible thing to say: if the agent's belief that the option chosen is a good thing to do is a grossly irrational belief, then surely the choice will be equally irrational. So it would be more plausible to say this: a choice is rational just in case it is *rational for the agent to believe* that the option chosen is (in the relevant sense) a good thing to do.'

strong evidence that you ought to *A* and justifies a belief that you ought to *A*, you form – via a correct route of reasoning, let us assume – a belief that you ought to *A*. However, due to a slip in your reasoning, you fail to form an intention to *A*.

Suppose you think that the truth of (i) is restricted to certain circumstances. Should we think that the just described situation is one in which (i) does not hold true? I do not see how one could possibly argue for this. You are justified in believing that you ought to *A*, you hold evidence for this belief, and you arrived at it via correct reasoning. Plus your belief is true: you ought to *A*. It seems that if ought-beliefs ever entail rational requirements on intentions, then they will certainly do in the situation described.

But on the counterfactual analysis they do not. If, in the situation described, your non-normative beliefs were true, you would not have most reason to *A*. Hence, rationality does not require you to intend to *A*, despite your normative belief that you ought to *A*. Your ought-belief does not entail a rational requirement on your intention. Parfit could not maintain the correctness of (i) on his account of 'rationality requires'. For those defending (i), this must pose an awkward result.

However, you may not endorse (i) to start with. Perhaps you think that, instead of (i), (ii) represents a correct requirement of rationality. But could (ii), under the counterfactual analysis, constrain your normative beliefs and intentions in a plausible fashion?

Again, on Parfit's view, (ii) would be far from being a *necessary* requirement. One plausible way to read (ii) is to say that rationality requires you to avoid the combination of believing that you ought to *A* and not intending to *A*.

Consequently, (ii) would apply to you only if the truth of your non-normative beliefs would entail that you have most reason not [to believe that you ought to *A* and not intend to *A*].

There are three distinct ways of avoiding this combination. You can: (a) believe that ought to *A* and intend to *A*; (b) not believe that you ought to *A* and intend to *A*; or (c) not believe that you ought to *A* and not intend to A. So, for (ii) to apply to you, it would need to be the case that no matter whether you (a), (b), or (c), you do something you have most reason to do.

No doubt, this limits the application of (ii) to an implausible degree. What an outlandish set of beliefs you must have for this situation to occur. Just consider a situation where by either (a) or (c) you ensure that you do something you have most reason to do. To represent such situation, your beliefs would need to guarantee that, for example, you have most reason [to believe that you ought to visit your mother in the hospital and to intend to visit you mother in the hospital] and, at the same time, have most reason [*not* to believe that you ought to visit your mother in the hospital and *not* intend to visit her in the hospital]. The set of beliefs whose truth would imply this would certainly be extraordinary.

Nevertheless, consider one example of beliefs that has the potential to guarantee this. Suppose you believe that an evil dictator will destroy the entire world unless [you believe that you ought to visit your mother in the hospital *and* you intend to visit her] or [you do not believe that you ought to visit your mother in the hospital *and* you intend to visit her]. Though debatable, if this belief were true, you would have most reason to bring about this disjunction of attitudes.

However, I have no doubt that those defending (ii) would not accept that application of (ii) might depend on such unlikely beliefs. On *Parfit's counterfacual*

account of rational requirements, (ii) would be an almost negligible requirement of rationality.

However, what if you deem (ii) as incorrect or negligible? Then, for you, this result does not pose a threat to the counterfactual analysis. Does the counterfactual analysis come with other shortcomings?

Consider a general worry. As my examples above show, the counterfactual analysis makes the application of rational requirements dependent on a feature of your attitudes. In particular, the application of a rational requirement depends on a counterfactual feature of the contents of your non-normative beliefs, namely their assumed truth implying that you have most reason for doing something. Recall that in this paper I am concerned with rational requirements of coherence. I agree that by adding or losing a (non-normative) belief of yours you can come to satisfy or violate a rational requirement of coherence. But I do not see how adding or losing a belief of yours could alter what *counts* as a coherent or incoherent relation among your attitudes, thereby altering what rationality requirements of you.[27]

Here is a further shortcoming of the counterfactual analysis. So far, I interpreted the *counterfactual-reasons analysans* ('If *S*'s non-normative beliefs were true, *S* would have most reason to *X*') as follows. Suppose, at *w*, *S* has a given set of beliefs. Suppose that *all* beliefs contained in this set were true. If *S* would then have most reason to *X*, *S* would satisfy the *counterfactual-reasons analysans*.

[27] As I have instead argued in section 4, the application of a rational requirement depends on one's rational *capacity*, where capacity can be roughly understood as one's understanding of and ability to establish coherent relations among one's attitudes. A more precise characterisation of coherence is provided in section 7.

Assume that, at *w*, *S*'s beliefs are such that there could not be a possible world at which *all* of *S*'s beliefs are true. That is, at *w*, either *S* believes a flat contradiction, holds a pair contradicting beliefs, or believes something that implies a contradiction. For example, suppose that if all of your beliefs were true, the current temperature would be -5-degrees Celsius and +20-degrees Celsius at the same point and time. I assume that this implies a contradiction. There is no situation in which this could be the case. Hence, there is no situation in which all of your beliefs are true.

As it stands, this has untenable consequences for the counterfactual analysis. As *S*'s non-normative beliefs entail a contradiction, a conjunction of their contents would entail *anything*.[28] Hence, in the *counterfactual-reasons analysans*, '*S* has most reason to *X*' would come out as true for every replacement of *X*. Put differently, the fact that *S*'s set of beliefs contains or implies a contradiction would make the *counterfactual-reasons analysans* vacuously true for any 'X'. Rationality would require absolutely everything of *S*. This is without doubt incorrect.

There seems to be a straightforward solution to avoid this problem. We could modify the counterfactual analysis as follows: at *w*, rationality requires of *S* that *S X*s if and only if: (i) the contents of *S*'s non-normative beliefs do not imply a contradiction; and (ii) if *S*'s non-normative beliefs were true, *S* would have most reason to *X*. Consequently, this modified version of the *counterfactual-reasons analysans* would not apply to subjects whose non-normative beliefs imply an inconsistency.

[28] Here I assume the correctness of the 'principle of explosion', as it applies in classical logic, i.e. one can validly derive any statement from a conjunction of contradicting propositions (*p* and not-*p*).

Adding (i) to the *counterfactual-reasons analysans* avoids the possibility of it implying that everything is required by rationality. But this modified account also comes with an unsatisfactory consequence. We could use it only as an account of 'rationality requires' for subjects who are ideal in being to a certain degree attitudinally coherent. We could not use it as an account of 'rationality requires' for those who are non-ideal in believing a contradiction. This poses a serious problem. By believing a contradiction, one does not 'cancel', as it were, *all* rational requirements one is under. Instead, one *violates* some rational requirements, and hence must be subject to them.

Maybe we can vindicate the counterfactual analysis by changing how we read the antecedent of *counterfactual-reasons analysans* ('If *S*'s non-normative beliefs were true'). So far, I read this antecedent as referring to the entirety of *S*'s non-normative beliefs. It thus refers to a counterfactual situation in which *everything* non-normative *S* believes is true. So, if you believe *p*, *q*, and *r*, then rationality requires you to *X* if and only if you would have most reason to *X* if *p*, *q*, *and r* were true. But maybe an alternative reading gives us a better account. Let us assume that the antecedent refers to *S*'s non-normative beliefs, taken *individually*.[29] That is, suppose again you believe *p*, *q*, and *r*. Then, rationality requires of you that you *X* if and only if you would have most reason to *X* if *p*, or *q*, or *r* were true.

On this reading, rationality requires you to *X* if and only if the counterfactual truth of *any* one of your beliefs would imply that you have most reason to *X*. This also avoids the possibility of implying that everything is required by rationality by having contradicting beliefs. Suppose you believe *p* and you believe not-*p*. This

[29] Parfit (2011: 112-3) hints at this solution by saying that '[w]hen our beliefs are inconsistent, some of our desires or acts may be rational relative to some of our beliefs, but irrational to others.'

would not imply that everything is rationally required of one, as we would, in fact, replace the antecedent of the *counterfactual-reasons analysans* with a contradiction. Instead, we would be looking at the normative consequences of *p*, and not-*p*, individually.[30]

I doubt that this can vindicate the counterfactual analysis. Suppose that if *p* were true, you would have most reason to *A*. If *q* were true, you have most reason to not-*A*. On the counterfactual analysis, this would imply that rationality requires you to *A*, whilst requiring you to not-*A* at the same time.

Here is an illustrative example. Imagine you intend to go sailing in Oslo. You wonder which outfit you should wear. As it happens, your beliefs about the current temperature are incoherent. On the one hand, you believe that the current temperature is 25-degrees-Celsius. On the other hand, you also believe that the current temperature is -5-degrees-Celsius. If your first belief were true, you would have most reason to intend to wear your summer jacket. If your second belief were true, you would have most reason to intend not to wear your summer jacket. On Parfit's counterfactual analysis, this would imply that rationality requires you to intend to wear your summer jacket, whilst at the same time requiring you to intend to *not* wear your summer jacket.

This is implausible. A fundamental requirement of rationality is to *avoid* pairs of inconsistent intentions. Intentions aim at implementation; a joint implementation of one's intentions is only logically possible if one does not have contradictory intentions. In general, rationality should issue requirements that

[30] Of course, this solution works only if we decompose 'conjunctive beliefs'. Suppose you have a single belief that [*p* and not-*p*]. Then we would need to decompose this into the atomic propositions that constitute the content of your conjunctive belief and see what their normative consequences would be. That is, we would need to see what you have most reason to do if p were true, and what you would most reason to do if not-p were true.

guide you out of an irrational state, and not deeper into such a state.[31] Parfit's counterfactual account of 'rationality requires' can thus not provide us with a correct analysis of the *GR*.[32]

6 Preferred analysis

I prefer a different analysis of the *GR*. In this section, I will suggest analysing the *GR* in terms of what I shall call 'necessary explanation'. Roughly formulated, rationality requires you to *X* if and only if the fact that you not-*X*, in conjunction with your rational capacities, explains necessarily why you are not fully attitudinally coherent. I will refer to this as my 'preferred analysis'. I will show that this *preferred analysis* avoids the shortcomings of the accounts I discussed earlier in this paper.

In the previous sections, I have already identified a number of things a correct analysis of the *GR* needs to ensure or avoid. A correct analysis, for instance, needs to avoid that requirements of rationality apply to *everything*. Stones, cars, and tumble dryers are not subject to any demands of rationality.

We also cannot analyse the *GR* in terms of necessary conditions for full rationality. Not *every necessary condition* for being fully attitudinally coherent is required by rationality. For example: that *S* uses propositions to think, is alive, or is spatially extended, are necessary conditions for *S* to be fully coherent. None of this, however, is required by rationality.

Moreover, not everything that rationality requires is a genuinely necessary condition for full attitudinal coherence. Rational requirements apply relative to

[31] Broome (2007: 365) makes a similar point.

[32] For additional criticism of Parfit's counterfactual account of rationality, see section 6 in Broome (2007b).

one's rational capacities. Rationality requires you to *X* only if you possess the relevant rational capacities that give rise to this requirement. Hence, by not having some particular capacities, you might be fully coherent without *X*-ing. So, rational requirements do not specify necessary conditions for full coherence.

Let me set off by tackling the problem that not every necessary condition for full rationality is itself required by rationality. In my *preferred analysis*, I intend to exclude those 'un-required' necessary conditions as follows. Suppose that *S N*s is a necessary condition for *S* to be fully attitudinally coherent. One thing that is *not* necessarily true of *S N*s is this: if it is *not* the case that *S N*s, then this explains why *S* has a non-maximal degree of coherence.[33] For example: I assume that *S's* being alive is a necessary condition for *S* to be fully coherent. But it does not hold that if *S* is not alive, then this explains why *S* has a non-maximal degree of coherence. For if *S* is not alive, *S* lacks *any* degree of coherence. Consequently, not being alive could not explain why *S* has a non-maximal degree of attitudinal coherence.

Consider another example. I assume that *S*'s ability to take attitudes towards propositions is a necessary condition for *S* to be fully coherent. But if *S* cannot take attitudes towards propositions, this fact will not be part of an explanation why *S* is non-maximally coherent. Again, without being able to take attitudes towards propositions, *S* has *no* degree of coherence.

I intend to exclude these 'un-required' necessary conditions from being rationally required by making sure that my *preferred analysis* includes the following condition: at *w,* rationality requires of *S* that *S X*s only if *S* not-*X*s can

[33] By saying that *S* has a non-maximal degree of rationality, I wish to express that *S* has degree of rationality that is not maximal.

explain why *S* is non-maximally coherent.[34] By 'non-maximally coherent' I mean 'possesses a degree of coherent that is not maximal'. Put colloquially: if rationality requires you to have a certain feature, then not having this feature must be able to explain why you have a degree of coherence among your own attitudes that is non-maximal.

Does this condition perhaps even suffice as an analysis of the *GR*? That is, is it possible to analyse the *GR* in terms of the following 'possible-explanation analysans'?

> *Possible-explanation analysans*. The fact that *S* not-*X*s explains possibly why *S* is non-maximally coherent.

I do not think this is possible. Though it excludes some un-required necessary conditions, it would allow other un-required things to be required by rationality.

Suppose you are a lazy person. Assume that there is a context in which your laziness explains why you sometimes fail to intend the means you believe to be necessary to your intended ends. Thus, your laziness explains possibly why you are not fully attitudinally coherent. However, not being lazy is not something rationality requires. So, we cannot analyse the *GR* in terms of the *possible-explanation analysans*.

But maybe a particular strengthening of the *possible-explanation analysans* will do. Suppose that whenever rationality requires of *S* that *S X*s, the fact that *S* not-*X*s does not only represent a *possible explanation* why *S* is non-maximally coherent. . In addition, it represents a *necessary explanation*, as I shall call it. This suggests analysing the *GR* in terms of the *necessary-explanation analysans*.

[34] By saying that '*S* not-*X*s can explain why *S* is non-maximally coherent' I simply wish to express the notion that it is *possible* for the fact that *S* not-*X*s to explain why *S* is non-maximally coherent.

> *Necessary-explanation analysans*. The fact that *S* not-*X*s explains necessarily why *S* is non-maximally coherent.

I use 'necessary explanation' as a technical term here. So, before I can evaluate whether we can analyse the *GR* in terms of the necessary-explanation analysans, I need to elucidate the notion of 'necessary explanation' I am operating with.

To begin with, I treat 'necessary explanation' as a primitive relation. So, I cannot give a reductive account of this notion. In particular, as I point out below, we should not try to analyse 'necessary explanation' in terms of alethic modal logic. Nonetheless, I can describe it and point to some of the implications of necessary explanations understood in the way I am treating them.

One way to describe necessary explanations is as *non-defeasible* explanations. By 'non-defeasible' I mean this: suppose, at *w*, some fact *e* explains necessarily some other fact *f*. This entails that adding something to the context where the explanation obtains cannot defeat, cancel or undo the explanation. In other words, if, at *w*, *e* explains necessarily why *f*, then this explanation is not restricted to *w*. This explanation will obtain in *all* possible contexts in which *e* obtains.

Here is an example of a necessary explanation. Suppose, at *w*, it is true that (i) you are 195 cms tall. It is also true that (ii) I am 190 cms tall. Then, the conjunction of (i) and (ii) does not only explain at *w* why you are taller than me. It explains this in *all* in contexts in which (i) and (ii) obtain. In other words, there is *no* context in which (i) and (ii) obtain, and yet the conjunction of (i) and (ii) fails to explain why you are taller than I am. Thus, conjoining (i) and (ii) forms a necessary explanation for why you are taller than me.

I turn to another feature of necessary explanations. It is of critical importance *not* to try to reduce them to expressions of alethic modal logic. For example, suppose again that some fact *e* necessarily explains some other fact *f*. Call this necessary explanation '*E*'. *E* cannot be analysed as any of the following statements:

N_1. Necessarily, *e* explains *f*.

N_2. Necessarily, if *e*, then *e* explains *f*.

N_3. Necessarily, if *e*, then *f*.

Consider N_1 first. Here is why *E* does not entail N_1. I think of explanations as *factive* relations. That is, at *w*, *e* explains *f* only if, at *w*, *e* and *f* obtain. So, if *E* entailed N_1, then *E* could hold true only if *e* and *f* obtain *necessarily*. But as my 'height example' shows, this does not hold for all necessary explanations. The fact that you are 195 cms and I am 190 cms tall explains necessary why you are taller than me. But this implies neither that necessarily, you are 195 cms and I am 190 cms tall, nor that you are necessarily taller than me. Hence, *E* does not imply N_1.

Consider N_2. Unlike N_1, *E does* imply N_2. This is almost trivial. For example, if the fact that you are 195 cms and I am 190 cms tall explains necessarily why you are taller than me, then, *if* you are 195 cms tall and I am 190 cms tall, this then will explain why you are taller than me. So, *E* does imply N_2.

Likewise, *E* implies N_3. I said that explanations are factive relations. So, if the fact that that you are 195 cms tall and I am 190 cms tall explains necessarily why you are taller than me, then it follows that whenever it is the case that you are

195 cms tall and I am 190 cms tall, then you are taller than me. Hence, *E* implies N_3.

But even though *E* implies N_2 and N_3, we can reduce neither *E* to N_2 nor *E* to N_3. For neither N_2 nor N_3 strictly entails *E*. It is simple to show why. N_2 and N_3 state strict conditionals. So, by replacing *e* with a necessary falsehood, both N_2 and N_3 will turn out to be true. However, if *e* necessarily explains *f*, replacing *e* with something impossible will not guarantee the correctness of the explanation relation. So, for a necessary explanation to be correct, its *explanans* must obtain in some possible contexts. In sum, though necessary explanations come with some modal commitments, they cannot be fully analysed in terms of modal necessity.

I now return to the issue whether we can analyse the *GR* in terms of the *necessary-explanation analysans*. In fact, I do not think we can. But as shown below, the *necessary-explanation analysans* comes very close to a correct analysis of the *GR*.

Here is why the *necessary-explanation analysans* fails to analyse the *GR*. In section 4, I argued that rational requirements do not strictly entail the necessary conditions for full rationality. I partly based this argument on the fact that the *GR* does not imply the *strict analysans*, i.e. necessarily, if *S* is fully coherent, then *S* *X*s. This is so because rational requirements apply relative to our rational capacities. As our capacities vary between contexts, the rational requirements we face vary with them. So, even if in one context rationality requires one to *X*, it does not follow that in all contexts in which one is fully coherent, one *X*s.

The *necessary-explanation analysans* fails for a similar reason. It fails because it implies that in *all* contexts in which *S* not-*X*s, this fact explains why *S* is non-

maximally coherent. However, this implication is incorrect. *S* is not necessarily subject to a requirement to *X* in *all* possible contexts. So, even if there is a context in which rationality requires of *S* that *S X*s, it does not follow that the fact that *S* not-Xs explains in *all* contexts that *S* is non-maximally rational.

But this already suggests a solution. If we could restrict the *necessary-explanation analysans* in such a way that *S* not-*X*s only explains that *S* is non-maximally coherent in those contexts in which rationality requires of *S* that *S X*s, then it seems it would get us a correct analysis of the *GR*.

When does a rational requirement apply to a subject? In section 4, I already suggested an answer to this question. I said that we are subject to individual requirements of rationality in virtue of our rational capacities. I also argued that different requirements presuppose different rational capacities.[35] Moreover, I also suggested that our rational capacities construct themselves of out of our cognitive abilities.

Here are some rough examples of how I think particular capacities give rise to certain requirements of rationality. Suppose you are reliably disposed to use the usual introduction and elimination rules implied by conjunctions in your reasoning. Such a disposition will be, I assume, a fundamental part of your rational capacities. It is plausible to think that you are subject to a rational requirement to believe *p* if you believe [*p* and *q*] in virtue of this capacity. Or suppose you are reliably disposed to make conditional inferences and to use *modus ponens*. Again, this will be a rational capacity of yours. Your possession of

[35] For example, being rationally required to believe that the cat is on the mat if you believe that [the cat is on the mat and it is snowing] will presuppose different rational capacities than being subject to a requirement that requires your degrees of believing that it snows, it rains, and it is sunny to add up to one if you believe that [necessarily, either it snows or it rains or it is sunny] and you believe that [it snows, it rains, and it is sunny are mutually contrary propositions].

this capacity will ensure that rationality requires you not to believe not-*q* if you believe *p* and [if *p* then *q*].

Another example: assume that rationality requires you not to believe a contradiction, or not to have contradictory beliefs. Possibly, a necessary, and even sufficient condition for being subject to this requirement is being disposed to understand some canonical facts about the concept of negation. According to Simon Evnine (2001: 354), this may consist in a disposition to grasp '[…] that a proposition and its negation are mutually exclusive, or incompatible with each other.' Again, such a disposition may possibly be part of your rational capacity.

This brings me to the following analysis of the *GR*. One thing we already know is this: the application of the requirements of rationality *S* is subject to at *w* will depend on the rational capacities *S* possesses at *w*. So, at *w*, rationality requires of *S* that *S X*s only if (i) at *w*, *S* has certain capacities of rationality. Let this be the first condition of my analysis.

Here is the second condition. Let 'S Cs' represent the totality of *S*'s rational capacities at *w*. I suggest that, at *w*, rationality requires of *S* that *S X*s only if (ii) the conjunction of [*S C*s and *S* not-*X*s] explains necessarily why *S* is not fully attitudinally coherent. In other words, *S* is rationally required to *X* only if *S*'s rational capacities *S* at *w,* in conjunction with the fact that *S* not-*X*s, explain necessarily why *S* has a non-maximal degree of coherence between *S*'s attitudes.

Including rational capacities as a part of the necessary explanation guarantees the following: it ensures that rationality requires of *S* that *S X*s only if *S* possesses appropriate rational capacities to be subject to this requirement. This analysis thus avoids the shortcomings of analysing the *GR* in terms of the *necessary-explanation analysans*.

Here are some less formal examples of how this account works: assume that, at *w*, you are reliably disposed to accept some canonical facts about conditional inferences and *modus ponens*. To simplify, suppose further this is the only rational capacity you possess at *w*. Let us ask: does rationality require you, at *w*, not to believe not-*q* if you believe *p* and [if *p* then *q*]? On the two conditions just suggested, this depends on whether your rational capacities at *w*, in conjunction with the fact that you believe [not-*q*, *p*, and if [if *p* then *q*]], explain necessarily that you have a non-maximal degree of coherence. In this case, I think it is very plausible to assume that it does. Here is an indication of this. I do not see how you can be fully coherent whilst believing [not-*q*, *p*, and if [if *p* then *q*]] *and* being reliably disposed to accept some canonical facts about conditional inferences and the use of *modus ponens.* Nevertheless, you could have this combination of beliefs in conjunction with your rational capacities and still have *some* (non-maximal) degree of coherence. Hence, I think that your rational capacities in conjunction with believing [not-*q*, *p*, and if [if *p* then *q*]] explain necessarily why you are non-maximally coherent.

Compare this with another example: suppose, at *w*, you have the same rational capacities as in the example above. Are you then rationally required, at *w*, to ensure that your degrees of believing that it snows, it rains, and it is sunny to add up to one if you believe that necessarily, either it snows or it rains or it is sunny and you believe that that it snows, it rains, and it is sunny are mutually contradictory propositions? In this case, I do not think this is plausible. Suppose your degrees of believing do not add up as this putative requirement prescribes. This fact alone, in conjunction with being disposed to accept some canonical facts about conditional inferences and *modus ponens*, would not suffice to explain necessarily why you are non-maximally coherent.

This brings me to finally state my *preferred analysis*. I hold that the *GR* is analysable in terms of the two conditions I specified above:

> *Preferred analysis*. Necessarily, for all *w*, *S*, *S Xs*, and *S Cs*, at *w*, rationality requires of *S* that *S X*s if and only if: (i) at *w*, *S* possesses particular capacities of rationality (*S C*s); and (ii) the fact that [*S C*s and *S* not-*X*s] explains necessarily why *S* is non-maximally coherent.

I think this analysis delivers an informative account of 'rationality requires'. Earlier in this paper, I appealed to an understanding of 'rational capacities' in terms of a subject's cognitive abilities and dispositions. I described some features of necessary explanations. Consequently, this account can give us a deeper understanding of what makes it the case that some subjects are under rational requirements.

However, there is one more important detail I need to mention about the necessary explanation in (ii). I will treat this necessary explanation as what I shall call 'efficient'.

Here is what I mean by 'efficient'. Suppose e_1 explains some fact *F* necessarily. So will a conjunction of e_1 and e_2, given that e_1 and e_2 can occur simultaneously. This is implied by the non-defeasibility I ascribed to this explanation.[36] But the conjunction of e_1 and e_2 will not form an *efficient* explanation of *F*; e_2 is not essential for this to be a necessary explanation.

Efficiency as a requirement thus implies a form of *minimalism*. It requires that no proper subset of the facts that explain *F* necessarily can also explain *F* necessarily. So, if e_1 and e_2 together form a necessary explanation of *F*, then neither e_1 nor e_2 alone should explain *F* necessarily too.

[36] Compare this with the non-defeasibility of a valid argument. If *p* validly implies *q*, so will any conjunction containing *p*.

Here is why this is important. Suppose your current rational capacities, in conjunction with your believing a contradiction, explain necessarily why you are non-maximally coherent. Then, the conjunction of your current capacities and the fact that you [believe a contradiction *and* desire an ice cream] will also explain why necessarily why you are non-maximally coherent.

If we read 'explains necessarily' as 'non-efficient,' then this would entail that, according to my *preferred analysis*, rationality requires you [not to believe a contradiction and to desire an ice cream]. But, surely, this would be an absurd requirement. Efficiency ensures that we do not need to embrace this result. The conjunction of your current rational capacities and the fact that you [believe a contradiction *and* desire an ice cream] is not an *efficient* necessary explanation of why you are non-maximally coherent. We could detach the fact that you desire an ice cream without losing our necessary explanation for why you are non-maximally coherent.[37]

7 Non-maximal coherence and rational capacity

The present paper aims to answer what makes it the case that one is subject to a particular requirement of rationality. The answer I have developed is roughly this: one is subject to a rational requirement to *X* if and only if not-*X*ing, in

[37] Requiring the necessary explanation in the *preferred analysis* to be efficient brings another advantage. It disallows an implausible aggregation principle for rational requirements. By 'aggregation' I mean this: if, at *w*, rationality requires of *S* that *S A*s and, at *w*, rationality requires of *S* that *S B*s, then, at *w*, rationality requires of *S* that [*S A*s and *S B*s].

Here is why this principle is implausible. Suppose there is a situation in which: (i) rationality requires you to believe *A*, (ii) rationality requires you to believe not-*A*, yet also (iii) rationality requires you to not believe [*A* and not-*A*]. Considering 'the preface paradox' (Makinson 2005) such a situation seems quite possible. Now assume that (iv) rationality requires you to not believe [*A* and not-*A*] only if rationality requires you not [to believe *A* and to believe not-*A*]. That is to say, in general, rationality requires you to not believe a contradiction only if rationality also requires you to not believe every proposition forming a contradiction. From (iii) and (iv) we can derive that (v) rationality requires you not [to believe *A* and to believe not-*A*], which in turn implies (iv), that it is not the case that rationality requires you [to believe *A* and to believe not-*A*]. Consequently, we cannot aggregate (i) and (ii) to 'Rationality requires you [to believe *A* and to believe not-*A*].'

combination with one's rational capacities, would explain necessarily why one has a degree of coherence that is non-maximal. (Compare the *preferred analysis* in section 6.)

As stated above, I take this to be a non-circular account of 'rationality requires'. To guarantee that this account is also genuinely informative, three key notions need to be accessible: (i) rational capacity; (ii) necessary explanation; and (ii) non-maximal coherence. So, for my analysis not to turn into a black box, I need to ensure the understanding of these three notions.

I have already elaborated upon my (technical) understanding of 'necessary explanation' in the previous section. 'Necessary explanations' are explanations whose correctness is context-*in*dependent. I will not say more about this here.

I also characterised the notion of rational capacity. Essentially, I said that one's rational capacity is comprised out of one's logical and conceptual abilities that form and coordinate our ability to regulate various stances we take towards propositions. This will, for instance, include one's conceptual understanding of negation, modality, conditionality, one's ability to perform various inferences, as well as one's motivational dispositions towards one's normative outlooks.

One notion left untouched so far is the notion of 'attitudinal coherence'. Coherence is at the core of the *preferred analysis*; I thus need to characterise it to a sufficient degree. This characterisation will not only give access to the *preferred analysis*, but also refine my characterisation of rational capacity. This will become apparent at the end of this section.

It is common practice to cash out attitudinal coherence in terms of attitudinal consistency, unity,[38] or absence of attitudinal conflict.[39] However, none of these notions are satisfactory: they fail to ground the broad range of incoherent attitudes that can be involved in violating rational requirements. Sometimes we violate a rational requirement by having two particular attitudes. Consider for example a pair of contradictory beliefs. Sometimes, however, we violate a rational requirement by having one set of attitudes while lacking another. Consider believing that you ought to *A*, yet lacking an intention to *A*. Neither the notion of attitudinal consistency, unity, or the absence of attitudinal conflict can cover these different types of incoherence.[40]

This justifies a novel approach. I shall make a succinct, yet original proposal to ground coherence upon what I shall call 'success conditions of propositional attitudes' (just 'success conditions' hereafter). One way a subject *S* can be incoherent is if it is impossible that *S*'s attitudes fulfil their success conditions simultaneously.

I shall define success conditions in terms of an attitude's constitutive aim and its norms of correctness.[41] Following David Velleman,[42] I will assume that the constitutive aim of an attitude type, such as belief or intention, is what distinguishes one type of attitude from another. Constitutive aims allow us to define when an attitude counts as correct and is thus a success.

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[38] For an excellent discussion of attitudinal consistency and unity, and their relation to rational requirements, see Reisner (2013).

[39] See Niko Kolody's 'Why be rational?' for one view as to how attitudinal conflict relates to the requirements of rationality. See also Fink (2010: 125).

[40] Reisner (2013) discusses this point in detail.

[41] See, for example, Engel (2004), Wedgwood (2004), Velleman (2000), and Bratman (2009).

[42] See Velleman (1992).

Attitudinal correctness and success conditions are heavily debated topics. This is not the place to contribute to the subtleties of this debate. Instead, I will follow a simplifying standard approach and assume that, for example, intentions aim, among other things, at their own implementation. So, if you intend to go shopping this afternoon, then one success condition of this intention is that you go shopping this afternoon. Likewise, I will assume that beliefs aim at truth. If you believe that the cat is on the mat, then a success condition of this belief is that the cat is on the mat. Furthermore, I assume that normative beliefs aim at correctness *and* implementation. If I believe that I ought to become a vegetarian, then this belief meets its success conditions only if: (i) it is true that I ought to become a vegetarian; and (ii) I will become a vegetarian in the future.

With this notion of success conditions at hand, I can describe two *objective* (and cognate) types of non-maximal coherence that will prove relevant for my *preferred analysis*. First, I will assume that a subject *S* is non-maximally coherent if it is logically excluded[43] that *S*'s contemporaneous attitudes meet their success conditions simultaneously. In other words: one way of being incoherent is when it is impossible that one's attitudes fulfil their constitutive aims simultaneously.

Inconsistent beliefs are the paradigmatic example of this type of incoherence. If you, at the same time, believe *p* and you believe not-*p*, it is logically excluded that your attitudes jointly fulfil their assumed success conditions, i.e. truth. Analogously, if you intend that *p* and, at the same time, intend that not-*p*, it is again logically excluded that your attitudes jointly fulfil their success conditions, i.e. implementation.

[43] The use of 'logically excluded' is pragmatically motivated here. It ensures that the threshold for objective incoherence is as low as possible.

However, this type of incoherence is not confined to attitudes whose conjoined contents form a logical contradiction (as in the two examples above). A slightly complicated example shows this. Suppose (i) you intend that *p*; (ii) you intend that *q*; (iii) you believe that *p* only if you see to it that *p*;[44] (iv) you believe that *q* only if you see to it that *q*; yet (v) you believe that you cannot see to it that [*p* and *q*]. Again, though their contents do not form a contradiction, it is logically excluded that attitudes (i) to (v) meet their success conditions jointly: you cannot implement your intentions (i) and (ii) while your beliefs (iii), (iv), and (v) are true. Your attitudes (i) to (v) make you objectively incoherent.

However, there is a further relevant way of being objectively incoherent that is not covered by the type of incoherence just described. Suppose (i) you intend that *p*; (ii) you believe that *p* only if *q*; and (iii) you believe that *q* only if you intend that *q*. Yet (iv) you have *no* intention that *q*. I assume this is a distinct way of being instrumentally incoherent.[45] You fail to intend something you deem necessary for implementing one of your intentions. But the incoherence involved here can usually not be accounted for by it being logically excluded that (i), (ii) and (iii) meet their success conditions simultaneously. It is normally logically possible that you can implement your intention (i) while both of your beliefs (ii) and (iii) are true.[46] What is logically excluded, however, is that your intention (i) and beliefs (ii) and (iii) meet their success conditions *unless* you form an intention that *q*. That is, you cannot implement intention (i) while beliefs (ii) and (iii) are true *and* it is not the case that you have intention that *q*, i.e. (iv).

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[44] In other words: you believe that *p* will not be the case unless *you* bring about that *p*.

[45] Cf. Broome (2005: 1-2, n. 5).

[46] I say 'normally' because it could be the case that it is logically excluded that: (i) your intention that that *p*; (ii) your belief that [*p* only if *q*]; and (iii) your belief that [*q* only if you intend that *q*] meet their success conditions jointly. This is precisely so if, necessarily, *p* implies not-*q*.

This creates a second way in which one can be objectively incoherent: a subject *S* is non-maximally coherent if by lacking an attitude it is logically excluded that *S*'s attitudes meet their success condition simultaneously.[47]

I now return to the *preferred analysis*. Accordingly, *X* is rationally required if and only if not-*X*ing in conjunction with one's rational capacities explains necessarily why one is non-maximally coherent. How does non-maximal coherence in this analysis relate to the two types of objective incoherence I just defined? Let me outline first how they are *not* related.

Suppose you have two contradictory beliefs. Your beliefs cannot fulfil their success conditions simultaneously. You are objectively incoherent. However, this type of incoherence exists independently of your rational capacity. You are not fully coherent independently of whether or not your logical and conceptual abilities dispose you not to have contradictory beliefs. In other words, your subjective rational capacity plays no explanatory role in accounting for objective attitudinal incoherence.

This implies that 'non-maximal coherence' in the *preferred analysis* cannot be co-extensive with *objective* incoherence. Recall that the 'necessary explanation' in the *preferred analysis* needs to be 'efficient'. That is, if one's rational capacity in conjunction with, say, having a pair of contradictory beliefs explains necessarily why you are non-maximally coherent, then neither your pair of contradictory beliefs nor your rational capacity alone can necessarily explain why

[47] There is an important restriction one needs to apply to this type of incoherence when it comes to second-order attitudes. Suppose you believe that you know that *p*. Suppose further that one of the success conditions of this belief is truth. Consequently, as long as it is not the case that you know *p*, it is logically excluded that your belief that you know *p* will meet all its success conditions. But, arguably, you are not incoherent in any sense if you believe that you know something without knowing it – e.g. suppose you believe you have excellent evidence that *p*, though this is not the case. This shows that this view needs to be restricted when considering the incoherence of second-order attitudes.

you are non-maximally coherent. However, having a pair of contradictory beliefs does explain necessarily why you are non-maximally coherent in an objective sense. 'Non-maximally coherent' in the *preferred analysis* thus need not refer to objective coherence as described above.

This is not surprising. The type of rational requirements I intend to develop a constitutive account for is a *subjective* one. That is, by infringing a rational requirement, you must have a set of attitudes that are, in one sense or another, at odds with your subjective stances.[48] The notion of 'non-maximal coherence' in the *preferred analysis* needs to reflect that. The following two examples make this point plain.

Suppose you believe that a particular book cover is entirely red. You also believe that the same book cover is entirely blue. Assuming that this is metaphysically (and thus logically) impossible, your two beliefs cannot be true simultaneously. You are objectively incoherent. However, intuitively you are not necessarily infringing a requirement of rationality. Suppose on your subjective conception of colour two things can be entirely of two colours simultaneously. You may even express this to yourself by explicitly believing that it is possible for one and the same object to have two colours simultaneously. Intuitively, you are not necessarily irrational in this situation.

Or consider another example. Imagine you intend that *p* and you believe that *p* will be the case only if *q*. Furthermore, you believe that *q* will be the case only if you bring about that *q*. However, unknown to you, *p* strictly entails *not-q*. Again, you are objectively incoherent. Your attitudes cannot fulfil their success

[48] On the distinction between 'objective' and 'subjective' rationality, see Kolodny (2005).

conditions simultaneously. But you are not necessarily irrational, at least in a subjective sense.

Consequently, to analyse the *GR* in terms of coherence, we need a *subjective* notion of coherence. I will briefly develop such a notion and argue that subjective coherence is crucially related to objective coherence. This will also elucidate the notion of rational capacity.

If the *preferred analysis* is correct and we interpret 'non-maximally coherent' as 'non-maximally *subjectively* coherent', then we already know something significant about subjective coherence: by conjoining one's rational capacity with whatever constitutes the violation of a rational requirement one must obtain a necessary explanation for why one is not non-maximally subjectively coherent. For example, if by having two contradictory intentions you violate a rational requirement, then it must be the case that your contradictory intentions together with your rational capacity explain necessarily why you have a non-maximal degree of subjective coherence.

Accordingly, I shall define subjective incoherence as a failure of your rational capacity to avoid objective incoherence. You are subjectively incoherent precisely when your rational capacity disposes you to be objectively coherent, yet your disposition fails to manifest itself. By saying that it is your rational capacity that disposes you, I mean that your disposition is sensitive towards objective incoherence. More precisely: your disposition is responsive (and thus usually trigged by) the fact that a set of your attitudes cannot meet their success conditions simultaneously. It is not triggered by any other another property of

your objectively incoherent attitudes; for example, their phenomenological properties, *etc*.[49] Accordingly, I shall define 'subjective incoherence' as follows.

> *Subjective incoherence*. Necessarily, *S* is subjectively incoherent if and only if: (i) the fact that *S* not-*X*s makes[50] *S* objectively incoherent; (ii) *S*'s rational capacity disposes *S* to *X*.

That is, subjective incoherence comes with two necessary conditions (that are jointly sufficient): (i) being objectively incoherent; (ii) being rationally disposed to avoid objective incoherence. Why assume that subjective incoherence presupposes objective incoherence? This becomes important when using subjective incoherence in an analysis of the *GR*, as I do in the *preferred analysis*. To begin with, it prevents an analysis of 'rationality requires' in terms of subjective coherence from being susceptible to objections stemming from reducing what rationality requires to 'meeting your own standards'.[51] Not all dispositions to form, retain, or change your attitudes entail a rational requirement.

Suppose, strangely enough, that you are reliably disposed not to retain a belief that *F* is a fish whenever you believe that *F* lives in water. It would be implausible if an account of 'rationality requires' entailed that this disposition gives rise to a rational requirement not to simultaneously believe that *F* is a fish and that *F* lives in water. Luckily, (i) prevents this: believing that *F* is a fish and *F* lives in water is clearly not objectively incoherent. By making (i) a necessary condition of subjective incoherence, one guarantees that an analysis of the *GR*

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[49] For a detailed account as to how mental dispositions can be sensitive to a particular property of a mental event, see Wedgwood (2006).

[50] By 'makes' I do not mean that *S*'s not-*X*ing 'causes' but 'constitutes the fact' that *S* is objectively incoherent.

[51] Cf. section 5 of John Broome (2007b).

via subjective incoherence does not lead to rational requirements with arbitrary content.

However, objective incoherence cannot suffice for subjective incoherence. I have already argued for this above. Therefore, I suggest that if not-*X*ing makes *S* subjectively incoherent, it must be the case that *S*'s rational capacity disposes *S* to *X*.

This condition has a dual significance. First, it ensures that not every case of objective incoherence is also one of subjective incoherence. Suppose you are objectively incoherent by having a pair of contradictory beliefs. This does not suffice for your being subjectively incoherent. The following example illustrates this in the context of irrationality.

> A paraconsistent logician sees nothing wrong with having some pairs of contradictory beliefs, because she believes that some contradictions are true. If a paraconsistent logician believes *p* and believes not *p*, is she necessarily irrational? Plausibly not. Even if paraconsistent logic is false, we might not think it irrational to believe it. And if you do believe it, plausibly you are not irrational if you have patterns of belief that conform to it. (Broome 2007b: 40)

Stipulation (ii) guarantees that possibility. I assume that a paraconsistent logician will have a set of rich conceptual sensitivities to whether or not the truth of *p* excludes the contemporaneous truth of not-*p*. For some proposition *p*, her rational capacity will dispose her not to believe not-*p* while believing *p*. For others this will not be so. Stipulation (ii) therefore ensures that a paraconsistent logician will not *necessarily* be subjectively incoherent (and subsequently irrational) if she has contradictory beliefs.

Here is the second function of (ii). It ensures that subjective incoherence requires more than the failure to manifest a random disposition to avoid objective incoherence. Instead, the disposition must be grounded in one's rational capacity. In conjunction with my *preferred analysis*, (ii) thus guarantees

that only subjects with a right kind of rational capacity will be subject to particular rational requirements.

To illustrate this point, consider an artificial person called 'Feelgood'. Suppose Feelgood's main purpose in life is to pursue her own wellbeing. Every disposition she has is instrumental to this aim. Suppose further that Feelgood is reliably disposed to avoid pairs of contradictory beliefs. However, this disposition is not grounded in her rational and cognitive capacity; Feelgood has no conceptual understanding that the truth of *p* excludes the truth of not-*p*. Instead, her disposition is grounded in her *non*-cognitive capacity. On Feelgood's perception of attitudes, a pair of contradictory beliefs is beset with a negative phenomenological quality: contradictory beliefs make her feel irritated and insecure. It is this aspect of contradictory beliefs that usually triggers Feelgood's dispostion to avoid them.

Assume now that, despite this non-cognitive disposition, Feelgood comes to have a pair of contradictory beliefs. According to my conception of subjective coherence, Feelgood is *not* subjectively incoherent. The disposition she fails to manifest is grounded *outside* her rational capacity.

For whatever this view is worth, it certainly squares well with the motivation behind my *preferred analysis*. Accordingly, rationality only requires something if one is equipped the right kind of rational capacity. Feelgood lacks the right kind of capacity to be subject to a rational requirement not to have contradictory beliefs; *a fortiori*, her capacity cannot figure in an explanation why she is subjectively incoherent. Consequently, given my account of subjective incoherence, the *preferred analysis* guarantees that Feelgood fails to be subject to a rational requirement not to have pairs of contradictory beliefs. As argued

above, this is precisely what we should expect from a correct constitutive account of 'rationality requires'.

Finally, a brief note on rational capacity. So far, I have characterised rational capacity in terms of one's cognitive abilities, conceptual understanding, propensity to perform certain inferences, *etc*. With the notion of objective coherence, I can characterise rational capacity more precisely: rational capacity is what grounds a set of special dispositions towards avoiding objective incoherence. These dispositions are special because they must be responsive to objective coherence. That is, whenever these dispositions are manifested, a subject avoids being objectively incoherent precisely because a set of her attitudes cannot fulfil its success conditions. It is this aspect of objectively incoherent attitudes that triggers the disposition.

Suppose you are disposed to avoid contradictory intentions. If this disposition is sensitive to the non-cognitive fact that it does not feel good to have contradictory intentions, then this disposition does not belong to your rational capacity. If, however, it is sensitive to the fact that contradictory intentions cannot meet their success conditions simultaneously, then this disposition belongs to your rational capacity. Rational capacity can thus be conceived of as the set of dispositions whose manifestation is sensitive to objective incoherence.

8 Summary

This paper tries to give a constitutive account of 'rationality requires'. Such an account must determine the conditions in virtue of which a particular rational requirement applies to a subject. In particular, such an account must avoid two shortcomings: (i) it must not apply requirements to subjects or things that have

no capacity of rationality; (ii) it must not lead to requirements with implausible content.

In section 2, I presented a putative analysis of the *GR* that falls short in both respects. If we think of the requirements of rationality as necessary conditions for full coherence, then: (i) the requirements of rationality apply to *everything*; and (ii) they require things that cannot be required by an *evaluative* conception of rationality. However, both of these shortcomings are implied by assuming that being a necessary condition for full coherence is *sufficient* for something to be required by rationality. They are *not* implied by assuming that requirements of rationality specify *necessary* conditions for being fully coherent.

Nevertheless, in section 4, I showed that we cannot think of the requirements of rationality as specifying necessary conditions for full coherence either. For this to be the case, the requirements of rationality would need to have a higher degree of modal robustness. That is, if, in one context, rationality requires you to *X*, then, in all nearby contexts, rationality requires you to *X* too. But this is not so. I argued that the application of a requirement of rationality hinges on the *rational capacities* a subject possesses. Since rational capacities vary across contexts, rational requirements do not stably apply *across* possible contexts. Hence, you may become fully coherent and rational by *avoiding* being subject to a requirement of rationality instead of satisfying it. That is why requirements of rationality do not specify genuine necessary conditions for full rationality.

Section 5 examined whether we can analyse 'rationality requires' in terms of *normative reasons*. I rejected this idea as I doubt that whenever rationality requires you to *X*, you have a normative reason to *X*. Surely, this still leaves open

the possibility of analysing the requirements of rationality in terms of a counterfactual connection between what rationality requires and the normative reasons one has for something. I concluded, however, that if this is a correct analysis of the requirements of rationality, it cannot be so for a coherentist conception of rationality.

In view of the lack of a sound analysis of rationality, I presented my own *preferred analysis* of the *GR* in section 6. Put roughly, I argued that rationality requires you to *X* if and only if your rational capacities, in conjunction with the fact that you not-*X*, together explain necessarily why you are non-maximally coherent, where 'non-maximally coherent' is meant to express that one's attitudes cannot fulfil their success conditions simultaneously (i.e. they are 'objectively incoherent') and that you have the right kind of disposition to avoid this kind of objective incoherence. This analysis guarantees – among other things – that specific requirements of rationality only apply to those with appropriate capacities for rationality.

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