

# Rational Delay

Abelard Podgorski

National University of Singapore

## Introduction

This paper will argue that the assessment of an agent's rationality is primarily concerned with *processes* rather than *states*. To understand this view and the question it tries to answer, it will be helpful to consider it in relation to a more familiar question about whether norms or requirements (I use these terms interchangeably) of rationality are synchronic or diachronic. Most recent discussion of rational requirements on mental behavior concerns, explicitly or implicitly, norms that are *synchronic*, taking agents to be rational or irrational in virtue of the states they are in at individual times.<sup>1</sup> Some so-called "time-slice" theorists have gone so far as to propose that all rational norms are of this kind.<sup>2</sup> Other philosophers insist that we supplement such synchronic norms with those of a *diachronic* sort, governing agents' temporally extended behavior in a way not reducible to demands on individual time-slices. At least one has suggested that all norms are of this latter kind.<sup>3</sup> The view I'll be arguing for is committed to the view that rationality is fundamentally diachronic. But it is committed to more. The diachronic norms most commonly discussed, like conditionalization, and the clearest endorsements of pure diachronism, agree with the synchronist in taking rationality to govern states. In this paper, however, I will be arguing against both kinds of state-oriented view.

In the course of my argument, I will present a very general challenge to synchronic norms governing our attitudes arising from a phenomenon I call *rational delay* – the fact that it takes time for

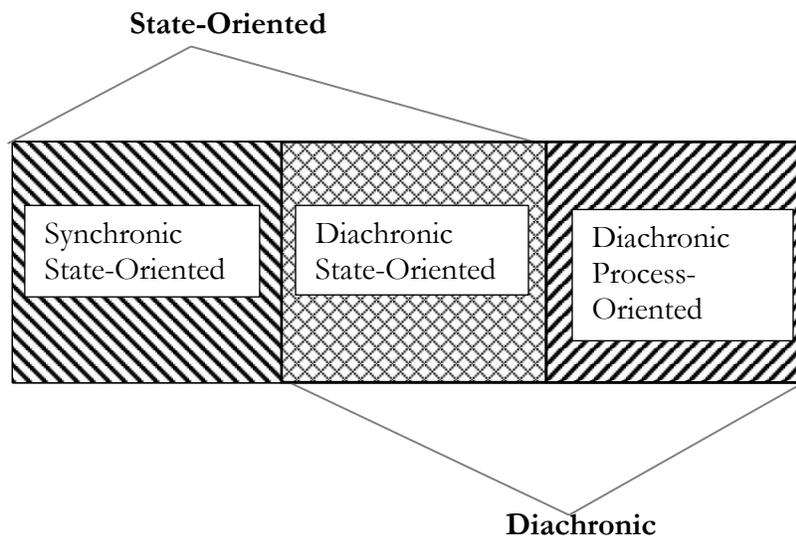
---

<sup>1</sup>A long list of such norms is defended by Broome (2013). See also Reisner (2009) and Lord (2014).

<sup>2</sup> See, e.g. Hedden (2015), Moss (forthcoming).

<sup>3</sup> Carr (2015) and Titelbaum (2015) are recent examples of those who argue for diachronic norms in addition to synchronic norms. Lam (2007) is, as far as I am aware, the only example of someone who defends a purely diachronic view, though Kolodny (2005, 2007) makes gestures in the same direction without outright endorsing that view.

agents like us to update our attitudes in response to changes in our mental state. But I will go on to argue that the closest *diachronic* replacements for these norms, including those diachronic norms commonly defended in the literature, also fail to adequately account for this phenomenon. Defenders of diachronic norms, I suggest, have failed to appreciate a crucial distinction that applies to diachronic norms – these norms can be, like synchronic norms, *state-oriented*, concerned with which (possibly intertemporal) combinations of states or attitudes the agent has at various times, or they can be *process-oriented*, concerned fundamentally with the operations of mental processes such as reasoning or consideration. The conceptual space, consequently, will distinguish at least three types of norms – *synchronic state-oriented* norms, *diachronic state-oriented* norms, and *diachronic process-oriented* norms. Those who propose diachronic requirements (Kolodny (2005, 2007), Reisner (2009)) or whose views are ambiguous between synchronic or diachronic readings (Way (2009)) share with the synchronists the more general state-oriented approach as common ground.<sup>4</sup> Ultimately, I will argue, only a system of norms in the *third* category, process-oriented norms, promises an adequate solution to the problem of rational delay.



<sup>4</sup> Kolodny characterizes his view as one about process norms, but as I'll argue in section 3.1, this is a result of conflating the state/process distinction with the synchronic/diachronic distinction. Because it concerns the relationship between an agent's earlier states and later states, it counts as a state-oriented view in the sense relevant to this paper.

We will get a better understanding of this tripartite distinction later in the paper, but a quick gloss will be helpful. For the defender of a synchronic state-oriented picture of rationality, being rational is being rational *at each individual time*, where this is a matter of having ones' attitudes and reasons at that time related to each other in the right ways. The norm of belief consistency, which demands that at each time, an agent not hold beliefs that are inconsistent with each other, is a paradigmatic norm of this sort. A proponent of diachronic, state-oriented norms holds that rationality is not just about having ones' attitudes and reasons stand in the proper relations at individual times, but that sometimes, rational norms govern the relation between states or attitudes held at two or more times. Conditionalization, which holds that an agent's credal state at one time must stand in the right relation to her credal state at earlier times (in particular, that her credence in P, once she has evidence E, is equal to her prior conditional credence in P/E), is a paradigmatic example from this class. Finally, process-oriented norms place demands directly on an agent's processes and not the mere relations between attitudes. An example of this sort of norm would be the following norm on the process of *consideration*: When considering whether P, one is rationally required to take into account only the evidence for and against P, and conclude by believing P only if the evidence considered sufficiently favors P.

This paper is structured as a progressive march rightwards across our diagram, motivated by an attempt to adequately characterize the rationality of agents who exhibit rational delay. In the first part, I will argue that a synchronic state-oriented account of norms governing the relations between our attitudes treats anyone who takes time to update our attitudes as irrational, and that this is a consequence we should reject. In the second part, I argue that a fully-spelled out diachronic state-oriented approach to those norms will either fall to modified versions of the objection from rational delay or else bear an explanatory burden best met by understanding such requirements as the mere shadows of norms on processes. In the third and final part, I will sketch what a plausible process-oriented picture might look like, and the distinctive way it handles problems that plague the state-oriented views.

Throughout, I will be relying on ordinary intuitive judgments about what limited agents can be rationally required to do. While I do not mean to be assuming any specific background view about the nature of rationality, there is a strain of thought that takes rational norms to be ‘ideals’ of a very strong sort (Christensen (2005, 2007), Broome (2013)), unconstrained by most of our cognitive limitations, which will resist those judgments; I doubt what I have to say here will be sufficient to dislodge someone from this theoretical alignment. Insofar as the judgments to which I appeal are pretheoretically attractive, they lend credence to the view I propose, but a full assessment of the virtues and vices of various higher conceptions of the nature of rationality is beyond the scope of this paper.

As a final note: I will understand rational norms as providing conditions under which *agents* are irrational. However, the norms I will discuss are sometimes framed instead as giving conditions under which *beliefs* or other mental states are irrational. I will be operating under the natural assumption that if an agent’s beliefs or other mental states are irrational, this is a respect in which the agent herself is irrational.

## 1.1 – Synchronic State-Oriented Norms

Although my ambition is to say something very general about rational norms governing our attitudes, I will begin by narrowing our focus, and consider a specific and important kind of norm – one tying our attitudes to the *reasons* we have favoring those attitudes. These are sometimes called norms of substantive rationality and distinguished from coherence or structural requirements, which concern the relationship between different attitudes, rather than between attitudes and reasons.<sup>5</sup> Looking at reasons norms will allow us to see in a particularly vivid way the structure of the argument from rational delay, and I will later explain how the argument can be extended to other norms in the synchronic class. Most philosophers accept that the behavior of rational agents reflects *some* kind of connection between our attitudes and the reasons for them<sup>6</sup>, and if we are thinking *synchronically*, a formulation like the following

---

<sup>5</sup> This distinction, or something like it, can be found in Broome (2013) Scanlon (2007), and Worsnip (forthcoming), among others. It is worth noting that the debate between synchronists and diachronists has typically been over so-called ‘structural’ norms, but the distinction applies just as well to substantive reasons requirements.

<sup>6</sup> See, e.g. Lord (2014), Way (2009).

naturally presents itself:

***Synchronic State-Oriented Reasons (SSR)***: If an agent's reasons<sup>7</sup> favor attitude X at t, she is rationally required to have X at t. If her reasons disfavor attitude X at t, she is rationally required not to have X at t.<sup>8</sup>

This norm is state-oriented because it governs a *state* of the agent, something she may or may not be in at a particular time, in this case her having or lacking an attitude, in contrast to a *process*, a dynamic activity which unfolds *over* time, like reasoning.<sup>9</sup> It is synchronic because it is wholly concerned with features of her time-slices individually – each violation occurs purely in virtue of her attitudes and reasons at some particular time. A common narrow version of this norm takes beliefs as the relevant attitude, and evidence as the kind of reason relevant to that attitude<sup>10</sup>, but it may be applied just as well to reasons for intention, desire, gratitude, or other attitudes on which reasons might bear.

We expect a complete picture of rationality to provide some account of our relation to our reasons. Indeed, some have suggested that there is nothing more to rationality than this relation, and that other norms are simply derivative (Lord 2013). I will begin by arguing that this connection is not best captured in synchronic terms. I do not mean to suggest that those in the literature who have discussed reasons norms would, on reflection, commit themselves to a synchronic interpretation, though it is the most natural one when no reference to different times is made explicit – they may simply not have had issues of time at the

---

<sup>7</sup>To give SSR the fairest shake, these reasons should be understood as reasons that are, in some sense, available to the agent (to exclude reasons that stem from facts about the world to which the agent has no access and which do not plausibly bear on their rationality), as 'normative' or justifying reasons (in contrast to merely motivating reasons), and also as reasons 'of the right kind' (to exclude, for instance, Pascalian reasons for belief).

<sup>8</sup>This principle takes what is sometimes called a "narrow-scope" form. Because the problem I will put forth depends only on claims about the conditions under which agents are irrational, and wide and narrow scope versions of these norms have identical implications for this (as noted in Kolodny (2007)), what I have to say will apply equally to both kinds of formulation. This is not to say that the distinction between wide and narrow scope has no interesting relation to question of whether norms are synchronic or diachronic. Lord (2013) and Worsnip (2015) have argued, for instance, that there are problems combining a wide-scope view with a diachronic approach, at least while preserving the motivations for the former.

<sup>9</sup>Even if one holds a metaphysical view on which attitudes like belief are ongoing mental *activities*, there is still a distinction between the low-level, self-sustaining activity of believing and the managerial operations of processes like reasoning. We can understand the state-oriented/process-oriented distinction as discriminating between norms governing activities of the former kind from those governing activities of the latter kind.

<sup>10</sup>Hedden (2015) commits explicitly to a synchronic norm of this type.

forefront of their mind. Nor do I mean to prejudice the case against synchronic norms in general by considering this one example. Other synchronic norms may be more plausible for independent reasons. But once we understand *why* the synchronic version of the reasons norm fails, we will be in a position to see wider implications for the rational landscape.

## 1.2 – Rational Delay

The problem with norms like SSR, I claim, is that they have misguided implications about the rationality of agents like us when we update our attitudes. In particular, I want to focus on the ways that updating is extended in time.

Notice that it often takes a considerable amount of time, upon being introduced to new reasons, for our attitudes to be fully updated. This is for a number of reasons. We have to notice, consider, and evaluate the considerations that bear on the change in attitude. Moreover, when the reasons just been introduced are substantial, or when they have extensive implications, we do not take them into account all at once. Instead, we reason in *steps*, working through the changes in our attitudes bit by bit, starting from the most salient or pressing updates and then moving outward.

To see this in action, consider a case where someone gains reasons that warrant a significant revision in their attitudes. Imagine Othello learns that Iago, someone that he has long trusted, has in fact been manipulating and deceiving him on a grand scale in order to get him to falsely believe his friends have betrayed him and his wife has been unfaithful. This gives Othello reason to change all sorts of beliefs that he may hold on the basis of Iago's testimony, the beliefs he holds on the basis of *those* beliefs, his attitudes of trust and respect and gratitude towards Iago, and his attitudes towards other people, like his wife Desdemona, whose relationships with him have been colored by Iago's manipulations. It takes him time to appreciate all the bearing this new information has on his beliefs. He gradually approaches this new mental consensus, starting with the things that are more important or more noticeable or more recent, and only later noticing implications that are more obscure. He may recognize right away that he should abandon his

intention to kill Desdemona. But it may take a long time before he realizes that he misinterpreted a recent innocent dinner comment because of his misinformation. If Iago's testimony infects much of Othello's views about the world, it won't be mere moments, or even mere hours, before Othello has scrubbed his beliefs clean of Iago's influence – it could take days or weeks. And we needn't imagine that Othello is particularly slow or particularly stupid in order for this process to be quite drawn out indeed.

SSR entails that anyone in Othello's position is failing rationally. For it tells us that any time one has reasons without having the attitudes those reasons favor, one is being irrational. And this will be true of Othello from the moment he gains new reasons to the moment he's pruned the last leaf in his tree of attitudes. Indeed, the only way that Othello can be rational according to SSR is if all of his beliefs, intentions, and other attitudes change *simultaneously* with him learning of Iago's treachery.<sup>11</sup>

This consequence is extremely counterintuitive. As long as Othello is being conscientious in updating his attitudes as they become salient, we typically think he is behaving fully rationally. Certainly he doesn't seem irrational merely in virtue of taking *any time at all* to update his attitudes. So cases of rational delay are at least prima facie counterexamples to principles like SSR. And I think we can press this counterintuitiveness further in at least two ways. First, the sort of behavior called for by SSR is *psychologically impossible* in a way that makes it objectionably demanding. Second, it is incompatible with our attitudes being *responses* to our reasons.

### 1.3 – Demandingness

The criticism I've given involves an accusation that SSR is in a certain respect too demanding. But demandingness objections to normative principles come in many forms, and I think it's important to distinguish this objection from other superficially similar worries one may have, to see why it is especially

---

<sup>11</sup> One might resist this argument by suggesting that something doesn't become a reason, or a reason the agent *possesses* immediately when it is learned, but only when it has been processed and its implications drawn out. But I think this is a very unpromising move. In order to avoid the problem, a defender of this strategy will have to claim that an agent gains a reason for an attitude only once the attitude has been formed. Anything earlier than this still comes with a delay. This gets things entirely backwards, however. Othello comes to believe the consequences of the information he's learned *because* of the reasons he has to do so – he does not come to have those reasons in virtue of forming those beliefs. Thanks to an anonymous reviewer for suggesting this line of defense.

difficult to set aside.

Sometimes, views like utilitarianism in ethics are accused of being too demanding for requiring too much personal sacrifice, or too much attention from the agent to one kind of value at the expense of others, or because it's unrealistic to expect agents to be motivated to satisfy them. The objection from rational delay is not an objection of this sort. An agent will fall short of SSR no matter how much effort, attention, and motivation they direct towards the goal of full rationality – it is not a question of values or of motivation or of virtue. Humans do not have the *psychological ability* to responsibly satisfy the norm, even in the short run, because we do not have the capacity to change wide swathes of our attitudes concurrently with gaining reasons to do so. So SSR is not overdemanding merely in the way a command to give all one's possessions to charity is overdemanding. We have the ability to follow the latter, however difficult or rare it might be. The obstacle to our satisfying SSR is much more fundamental. We have no psychological mechanism available to us by which our attitudes, in general, shift simultaneously with the reasons for them. So at best, we would satisfy SSR only if our attitudes changed concurrently by coincidence. And this would not be rational.

## 1.4 – Reasons-Responsiveness

We can say a little more about what would be wrong with an agent whose attitudes happened to change concurrently with their reasons. While their attitudes might *match* their reasons, they would not be *responses* to their reasons. This brings out a second facet of the problem of rational delay. Even if we did not have the cognitive limitations that make updating so time-consuming, and even if our attitudes could change instantly and all at once, our attitudes are formed *in response* to the considerations we have received. And so they will always *follow* whatever it is they are responding to.

Whether this is a matter of metaphysical or merely psychological necessity will depend on the outcome of disputes over whether simultaneous causation (through, for instance, quantum entanglement)

is metaphysically possible.<sup>12</sup> It will suffice here to note that wherever one comes down on that controversy, updating our whole mental state simultaneously with gaining reasons to do so, as a response to those reasons, is not a causal power available to the human mind, and this psychological impossibility is enough to threaten SSR.

This means our failure is not something that could be rectified by making us a little, or even a lot faster, or smarter. According to SSR, no matter how fast we update our beliefs, we are going to end up being irrational to some extent – even if we react *instantly* to our new reasons, we will be irrational in the moment they arrive. The only way for us to avoid being irrational when presented with new reasons if SSR is true would be for us to change our attitudes at the same time we gain our reasons. But this makes our attitudes no longer responses to our reasons at all. And this is more than a change of degree – a creature which does not respond to the reasons for its attitudes in anything like the way human beings can, but only has its states conveniently covarying as though tied together by a tether with no slack, is a creature whose cognitive behavior is no longer recognizably human, and it seems perverse to treat its behavior as a constraint on us.

I take this to be worrying enough on its own, but it is even worse if we accept some independently attractive auxiliary claims. For an agent to be fully rational, it is generally thought, it takes more than having attitudes that match ones' reasons – the agent must also *base* her attitudes on her reasons.<sup>13</sup> And many common accounts of the basing relation hold that in order to be based on a reason, an attitude must bear a causal relation to the agent's possession of that reason.<sup>14</sup> If simultaneous causation of the relevant sort is, as I have suggested, metaphysically or psychologically impossible, then some degree of delay turns out to be necessary for proper basing, and is therefore called for by rationality itself.

The assumptions about basing and causation at work in this last argument are controversial, and

---

<sup>12</sup> See, e.g. Mellor (1995).

<sup>13</sup> This comes up commonly as a condition on “doxastic justification” (See e.g. Kvanvig (1990)). But it is also plausible as a condition on rationality, even if there is some theoretical reason to distinguish these two notions.

<sup>14</sup> For example, Moser (1989), or more recently, McCain (2012).

there is not space to assess them here, so I would not rest my hat on this version of the problem, but it helps bring out how central our nature as responsive agents is to our rational life.

To further sharpen the point made in the last two sections, consider what it is to *become irrational*. Since irrationality is a position of normative deficiency, to go from being rational to being irrational is in some way to fail normatively, to make some kind of normative misstep. Because human agents generally get their reasons before they get the attitudes those reasons justify, according to SSR, they become irrational at the moment they gain those reasons. But we should not think that for a human agent to gain a reason involves or entails a normative failure. One does not make a mistake, commit an error, or misstep, when one, say, receives new evidence for a proposition one doesn't yet believe. One fails only if one doesn't react to those reasons in the right way. For a synchronic norm like SSR, however, any reaction is already too slow. Consequently, the only way for me to avoid the charge of irrationality is to *avoid getting any new reasons at all*. However enjoyable a life in an empty, soundless, lightless cave sounds, though, it doesn't seem like the sort of thing that should be a precondition for avoiding irrationality.

## 1.5 – Closure

We may now begin to consider how the objection we have raised against SSR can be generalized as an argument against a far wider class of proposed synchronic principles, including structural requirements on attitudes. Consider, for instance, the rational pressure many have thought exists for agents to believe the logical consequences of their beliefs. A first-pass synchronic norm codifying this thought might look like:

*State-Oriented Synchronic Closure:* If Q follows from the beliefs that an agent holds at t, then she is rationally required to believe that Q at t.

But in the same way that in ordinary human behavior, our attitudes are formed *after* we gain the reasons we have for them, we come to believe the consequences of some proposition only after we come to believe

the proposition itself. It takes time for those consequences to be *drawn out*. When I acquire a new belief, it can take quite a while before I can recognize the way this new belief interacts with the beliefs I already possess. And any agent who needs any time at all to draw out the consequences of her beliefs will violate the closure principle above. This is, as before, an implausible constraint on rational behavior. Similarly, it follows from this view that anyone who forms any individual new belief without simultaneously forming beliefs in all the consequences of that new belief (something we cannot do) thereby *becomes irrational*. But, again, intuitively, an agent who forms a belief like this on good grounds does not fail normatively.

## 1.6 – Weak Synchronic Norms and Why They Don’t Help

That requirements of the form we have considered might be too demanding has been suggested before (Harman (1986), Schroeder (2004), Broome (2013)). But the problem these authors address is not quite the problem raised here. They are worried by the fact that a norm like closure implies that a rational agent must believe *all* the consequences of their beliefs. There are, of course, an infinite number of logical consequences of any given set of beliefs, and having an infinite number of beliefs is plausibly psychologically or even physically impossible. Even if it is not, Harman suggests that limited cognitive agents like us should avoid the “mental clutter” of useless information; we have to prioritize what’s important. So some limits, these authors conclude, should be placed on *which* logical consequences there is rational pressure to accept. Similar concerns might be raised for a norm like SSR, given the wide range of attitudes upon which our reasons might bear. This kind of worry is distinct, however, from our worry, which concerns the *time* that it takes to draw those consequences out.

Since the objection I have given is also a kind of overdemandingness objection, though, it might be hoped that some weakening of the sort these authors suggest could help the synchronic view. There are of course countless qualifications one might add to the principles discussed and I cannot consider them all here. But here are some natural candidates.

First, we might add to the antecedent of our principles something like a condition that the agent

*cares* about the question (Broome (2013)). So a modified version of closure might read “If Q follows from the beliefs that an agent holds at t, *and the agent cares about whether Q*, then the agent is rationally required to believe that Q at t’”. This makes the principle less demanding, since it takes strictly more to violate the requirement.

Or instead of adding a conative attitude like caring, we might limit the antecedent of the closure norm to those beliefs of which the agent is *aware*. Or perhaps we should limit our principle to *explicit attitudes* only (Harman (1986)) or attitudes that we are now *actively considering* (Schroeder (2004)). These qualifications can be understood as ways of adding conditions of *salience*, and all of them make it easier for cognitively limited agents to satisfy the demands of rationality.

I think there is something right about the line of thought these modifications reflect. Our implicit attitudes and hidden reasons are so numerous, and so deeply buried, that norms requiring strict and broad sensitivity to them all will be far too demanding for us to satisfy. Unfortunately, while the rational delay objection is especially visible when applied to strong norms like the unmodified SSR and closure norms, it cannot be avoided with the synchronic strategy of incorporating these kinds of weakening conditions.

This is because adding conditions of caring or salience or explicit consideration to the antecedent of the norm of closure (or SSR) does not change the fact that in normal, intuitively rational attitude updating behavior, the antecedent gets satisfied *before* the consequent. Not only do we form beliefs before we draw out their consequences, but we are aware of those beliefs, care about whether the consequence is true, or have considerations become salient to us in some other way before we go about forming the new beliefs as well. The salience or awareness is a *trigger* for the formation of the consequent attitude and so occurs prior in time.

To further press the point, we can imagine a case where the only thing an agent is missing to count as irrational according to the modified closure norm is the added antecedent qualification. That is, perhaps they have beliefs that entail Q, lack the belief that Q, but do not care, are not aware of the beliefs, are not actively considering whether Q, etc. But this means that I could *become irrational* merely by becoming aware

of a belief, having it be made salient, beginning to actively consider a question, or starting to care about the matter. But this is not, intuitively, a circumstance in which one fails rationally.

As long as we are considering a conditional norm where, in rational attitude-updating behavior, we have the antecedent attitude before the consequent attitude, as we do whenever the latter is a response to the former, the synchronic approach is vulnerable to our objection. All this suggests that the sense in which SSR and synchronic closure are too demanding is deeper and more serious than the sense indicated by superficially similar complaints. It is a problem that persists even for norms that are qualified in ways that suffice to deal with these other objections.

## 1.7 – Generalization

I've argued, then, that the existence of rational delay is a problem for SSR and synchronic state-oriented closure. But it does not take much work to see that these are just especially striking cases of a much more general problem both with substantive norms relating our attitudes to our reasons, and structural norms relating our attitudes to each other.

In addition to a connection between attitudes and the reasons for them, or between beliefs and their consequences, philosophers have proposed rational requirements tying together:

- 1) Your belief that you ought to X and the intention to X.
- 2) Your (intention to X and belief that Y is necessary for Xing), and the intention to Y.
- 3) Your (conditional credence  $c$  in Q given P and your certainty that P), and the same credence  $c$  in Q.
- 4) Your belief that rationality requires you to have attitude A and A.<sup>15</sup>

Each of these has a natural synchronic, state-oriented interpretation which judges an agent irrational whenever they have the attitude(s) on the left without having the attitude on the right. For

---

<sup>15</sup>I don't suggest this list is exhaustive, but it is representative. Versions of many of these can be found in Broome (2013).

instance, the first would give us:

***Synchronic State-Oriented Enkrasia***: An agent is rationally required, if she believes that she ought to X at t, to intend to X at t.

But notice that each of these shares the key features of SSR which made it vulnerable to the objection from rational delay. In each case, in ordinary updating cases, we acquire the attitude on the left (we'll call it the *antecedent* attitude), before acquiring the attitude(s) on the right (the *consequent* attitude), and acquire the latter as a response to the former. As long as we acquire the attitude on the right in a diligent and timely way, it is likewise intuitive that we are not irrational. And it is again implausible that coming to have the attitude on the left before the attitude on the right is a way of failing normatively, and therefore of becoming irrational. This is enough to reconstruct the rational delay argument in its full glory.

Someone dedicated to the preservation of synchronic norms might, at this juncture, suggest that all of the norms so far discussed have something in common – they all involve consequent attitudes that are *called for*, in some sense, by antecedent attitudes or reasons, and therefore try to capture the pressure there is to *add* to our stock of attitudes by identifying a problem with holding the antecedent without the consequent.<sup>16</sup> Not all synchronic norms that have been proposed have this structure, however. Some, like norms of belief consistency, are rather prohibitions on having certain combinations of attitudes. Perhaps the problem of rational delay is only a problem for norms of the former sort, and the proper jurisdiction of synchronic norms is as these latter sorts of prohibitions.

Unfortunately for the synchronist, the problem of rational delay is not limited to conditional norms of the sort discussed above. Consider a norm of belief consistency, a synchronic interpretation of which might look like:

---

<sup>16</sup> Of course, this way of talking would be anathema to wide-scopers. It is not clear that they could even begin to sensibly draw this kind of distinction.

*Synchronic State-oriented Consistency (SSC)*: An agent is rationally required, for any inconsistent set of beliefs  $X$  and time  $t$ , not to have  $X$  at  $t$ .

But now recall: reflection on the norm of closure suggested that there is no rational failure involved in taking time to draw out logical consequences of newly formed beliefs. It would be perverse to insist that it's rationally okay to take time to draw out  $Q$  as a consequence of a newly formed belief that  $P$ , but not okay to take any time at all in throwing out the belief that not- $Q$ . It is often precisely *because* we have just drawn out  $Q$  as a consequence that we are in a position to reject our belief in not- $Q$ . So concerns about rational delay suggest that the rational norm of belief consistency, like the other norms we've discussed, is not synchronic.<sup>17</sup> Similar reasoning will apply to other norms prohibiting combinations of attitudes, like those forbidding incoherent intentions. Just as rational delay is allowed when the formation of one attitude calls for the adoption of another, it is allowed when the formation of one attitude calls for the rejection of another.

## 1.8 – Putting Things Together

The problems arise even for these norms in isolation, but it's worth noting how bad they get when we start to put many of these norms together. Every time I gain new reasons, according to one norm, I would have to form simultaneously every attitude supported by those reasons. Not to violate another, any time I form a belief, I would have to simultaneously form every logical consequence of that belief. According to others, every time I form a new belief, or a new intention, I would have to simultaneously

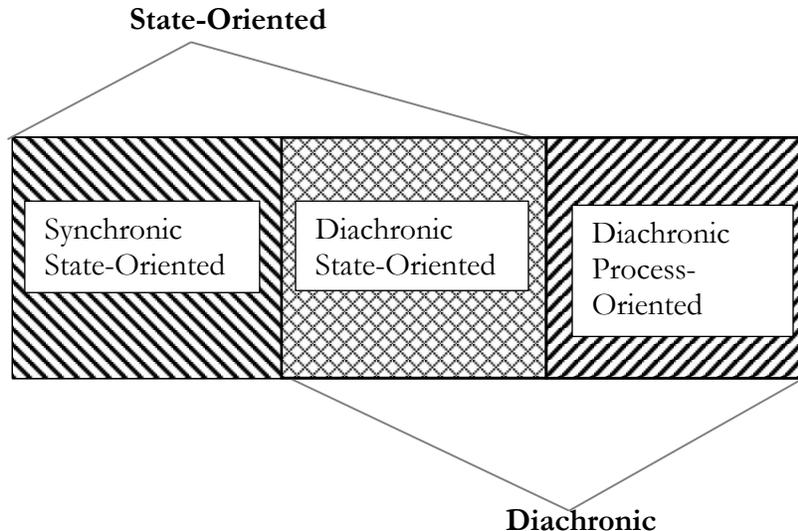
---

<sup>17</sup> A special case of the norm of consistency, a norm prohibiting contradictory beliefs, is a little harder to counterexample using rational delay, because it is more difficult to imagine someone rationally coming to the belief that  $P$  without first rejecting the belief that  $\sim P$ . But I think such cases can be found, when someone rationally comes to the belief that  $P$  not through reasoning but through some immediate perception, before recognizing that they already also have the belief that  $\sim P$ . If such cases are impossible, it seems to me, it is because it's simply not possible to believe contradictions at all, in which case a norm prohibiting doing so would be vacuous. In any case, we expect the pressure against believing contradictions to be of a kind with the more general pressure against believing inconsistencies. If we must look for an alternative to synchronic accounts of the latter, then we should also look for alternatives to the former.

form many other intentions which interact with those attitudes. To say that these requirements together are unmanageable is an understatement. Consequent attitudes in one norm might be antecedent attitudes in others, propagating demands which must all be met at once. If I get some evidence that my brother will be in town during a break, I may have to form at the same time the belief that he will be in town, the belief that I ought to take him out to dinner, the intention to take him out to dinner, the belief that in order to take him out to dinner I must make a reservation, and the intention to make a reservation. And that is just a start. Such behavior is no standard to which we might be reasonably held.

## 2.1 – Diachronic State-Oriented Norms

We’ve argued that the synchronic attempt to capture the connection between our attitudes falls victim to the objection from rational delay, even when weakened in the ways some have recommended. In our diagram of the logical space, then, we may eliminate norms in the leftmost box:



But there is still, surely, *some* important connection between the antecedent states and the consequent states in the norms we discussed. It is natural, then, to look for the minimal modifications we might make to insulate our rational requirements from these sorts of objections.

We had been assuming that rational requirements are synchronic – that they concern the relation between states possessed at a single time. But this feature of a synchronic picture precluded any room for rational delay. So we might hope to avoid the problem by moving to the middle box in our diagram – to diachronic state-oriented norms. These norms, recall, govern the relations between our mental states (being, therefore, state-oriented) at *different* times (being, therefore, diachronic).

Perhaps the most commonly discussed diachronic state-oriented norm is the Bayesian norm of *Conditionalization*, which relates an agent’s later credal state with her earlier credal state. One way to formulate it is as follows:

***Conditionalization***: An agent is rationally required, for any times  $t_1$  and  $t_2$  where  $t_1 < t_2$ , to have credence at  $t_2$  in  $P$  equal to her conditional credence at  $t_1$  in  $P/E$ , where  $E$  is the total evidence she acquires from  $t_1$  to  $t_2$ .<sup>18</sup>

But although this principle mentions two times, it does not have the right structure to avoid the argument from rational delay even in its original form. The synchronic reasons-responsive view failed, remember, because it did not allow any time to pass between when an agent acquired their reasons and when they were supposed to finish updating their attitudes. Conditionalization, as formulated above, however, still does not allow for any lag between one’s acquiring evidence and one’s changing credences. If an agent acquires evidence at  $t_2$ , then she is required to have her new credence *at*  $t_2$ .<sup>19</sup> But this is precisely what led synchronic views to ruin. What this shows is that in order for a reference to a second time to help avoid the argument from rational delay, the two times distinguished in a state-oriented diachronic norm must be the time at which we have *acquired* our reasons (or evidence, or other antecedent states), and the

---

<sup>18</sup>See Lewis (1999) for a formulation along these lines

<sup>19</sup>I am assuming that evidence acquired at  $t_2$  is “evidence acquired between  $t_1$  and  $t_2$ ”. If one reads conditionalization as referring to evidence acquired in the *open* interval between  $t_1$  and  $t_2$ , then it will still demand that an agent update her beliefs arbitrarily quickly, for evidence acquired at times vanishingly close to  $t_2$ .

time at which we are required to have updated *in response* to those reasons. That is, we need something like:

***Better Conditionalization***: An agent is rationally required, if she has newly acquired evidence E at t1, to have credence in P at t2 (some appropriate time after t1) equal to her conditional credence at t1 in P/E.

Or a corresponding diachronic adjustment of SSR:

***Diachronic State-oriented Reasons (DSR)***: An agent is rationally required, if her reasons favor attitude X at t1, to have attitude X at t2 (some appropriate time after t1).

## 2.2 – How Long is Too Long?

Similar modifications can be made to the other synchronic norms in Part I. These norms look like they may help with rational delay concerns because they allow time to pass between the state to which we respond when we update our attitudes, and the state which is our response. But “some appropriate time” in the principle is a placeholder that needs to be filled in. How far away from t1 is t2? We have a few options, and each is problematic.

If we read the norms as applying to times t2 arbitrarily close to t1, the norms will be too demanding, because they require that we update our attitudes arbitrarily fast. This approach has a better chance of making room for the *metaphysical* possibility of our consequent attitudes being rational responses to our antecedent states than the synchronic view, since at least the former follow the latter in time and therefore potentially in the causal order. But the instantaneous updating demanded by this view is still not *psychologically* possible. Certainly it will not come close to capturing our intuitions about the substantial permissible lag in cases like Othello’s. So they suffer the brunt of the argument from rational delay.

We could read the norms as demanding only that at *some*  $t2 > t1$  in the future the agent has the

consequent attitude. But this is not demanding enough. It permits an agent to exhibit *sluggishness*, and fail to update their attitudes even when they have plenty of time to do so, as long as someday they get around to it.

We could try to identify some particular threshold that sets  $t_1$  and  $t_2$  an appropriate distance apart, such that only agents who take longer than this threshold are held irrational. But it is hard to see how a threshold could be chosen in a way that isn't utterly ad hoc. Moreover, any such view must navigate between Scylla and Charybdis – if the threshold is too short, then the problem of rational delay will recur – the view becomes too demanding, and judges as irrational agents who are intuitively rational. If the threshold is too long, then the principle will be too weak to convict agents who exhibit irrational cognitive sluggishness. To make things worse, it is plausible that for *any* particular choice of threshold, we can imagine some agent who takes longer than that amount of time to update their attitudes and is not irrational. A wizard may cast a spell upon an agent that causes all of their activity, including mental activity, to happen in slow motion, capping their cognitive processing speed at some level too low for them to form their new attitude in time. Or, more mundanely, one may be temporarily knocked unconscious by a baseball before one can finish updating. Such an unfortunate agent does not seem irrational, if they are doing the best they can. What delay counts as too lax or too demanding, moreover, will depend on many features of the particular agent and the particular question at stake – some agents are brighter than others, or more effective at certain kinds of reasoning, or are in a position to reason in fewer steps, or otherwise have access to cognitive shortcuts unavailable to others.

This will be true even if we say the threshold is *vague*, like the point at which day becomes night, where some delays are clearly too short to threaten the agent's rationality, and others clearly too long to preserve it, with a band of indeterminacy in the middle. Even a fuzzy threshold will be affected by features of the agent like those mentioned above – what would be clearly sluggish for one agent might be in the fuzzy area, or even clearly too soon, for another with lower processing speed.

Furthermore, there is a problem that plagues any norm of this kind that demands successful

completed formation of the consequent attitude<sup>20</sup>. They are all too demanding because they preclude the possibility of something happening after t1 that absolves the agent from ever forming an attitude. And there seem to be many ways this could happen. The agent might become aware of new relevant considerations sufficient to undermine the required change of attitude, or suddenly drop into a coma, and end up without the consequent attitude without having committed a rational mistake.

To avoid these problems, it seems, we must make the difference between t1 and t2 sensitive to all the considerations we've discussed that can affect the time it is reasonable for an agent to take to update their beliefs, and we must include a clause (of the sort introduced by Broome (2013) and Lord (2013)) that allows the agent to escape the requirement if some appropriate "cancelling event" occurs. This leaves us with something like:

***DSR\****: An agent is rationally required, if her reasons favor attitude X at t1, and t2-t1 is a duration appropriate to the agent's cognitive abilities as applied to the problem under consideration, and no cancelling or delaying event happens between t1 and t2 to preclude or forestall the need to form X, to have attitude X at t2.

I do not want to deny that some ugly variation of this form might be true. But it is so opaque, and contains so many variables which call out for independent explanation, that it is a very poor candidate for being a *fundamental* rational norm. With ineliminable references to potential, and obscure, cancelling events and an agent-relative variable determining processing speed, it no longer simply relates an agent's states and times, and so abandons the attractive simplicity of a pure state-oriented approach.<sup>21</sup> I will argue in the next section that we can understand DSR\* as a mere consequence of a much less cobbled-together and much more explanatorily rich view that takes cognitive processes as the basic units of rational assessment, but

---

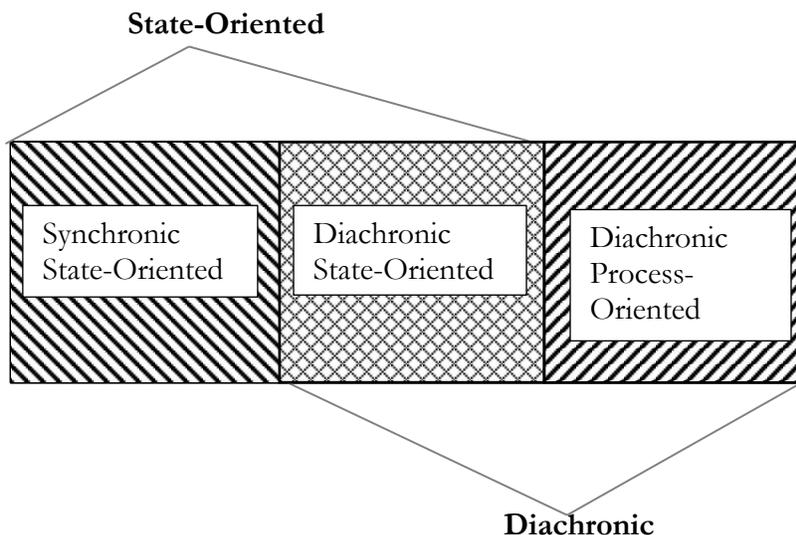
<sup>20</sup>Kolodny's view (2005, 2007) has this feature.

<sup>21</sup> Chris Meacham (2015) has made some related points about various formulations of conditionalization, eventually settling on the original, no-rational-delay version precisely to avoid these problems.

this portion of my argument must wait until the process picture has been properly introduced.

To summarize, if what we have argued so far is correct, while we can't quite say that there are no state-oriented norms whatsoever, it does seem that there is no good reason to accept *independent* state-oriented norms (synchronic or diachronic) *that connect different states of mind to each other*. The italicized qualifications are added for two reasons: first, because as I have suggested, it may be that some state-oriented norms are a *corollary* of more fundamental process norms, and second, because the rational delay argument concerns norms governing the relations between different states, and therefore has nothing to say about state-oriented norms that do not govern the relations between different states at all, such as a blanket prohibition on ever having the individual belief "P & ~P".

### 3.1 – Process-Oriented Norms



The attempts to capture the rationally significant connection between the antecedent and the consequent attitudes with a state-oriented approach have hit a brick wall. If there are any rational norms at all concerning the relation between these attitudes, then, we will have to take a different tack. In the final part of this paper, I propose a very different way of approaching norms on rational behavior. On this

*process-oriented* picture, rationality does not, fundamentally, govern states of mind like belief or intention at all. It governs processes such as reasoning and deliberation.

Others have made claims that are suggestive of this way of approaching rationality. In particular, in an exchange with John Broome, Niko Kolodny (2005, 2007) describes his view as involving ‘process requirements’, to be distinguished from ‘state requirements’ defended by Broome. But the norms he goes on to propose do not live up to this characterization, and they will not help with the problem of rational delay.<sup>22</sup>

At his most careful, Kolodny frames his norms in terms of what the agent must do ‘going forward’, given the state they are in. But what the agent must do, going forward, according to Kolodny, is acquire, abandon, or avoid attitudes and other states. So even these so-called process norms are still concerned with the relation between an agent’s mental states.<sup>23</sup> The contrast between these and what he calls ‘state requirements’ are that state requirements only govern the way an agent is *at a time*. That is, Kolodny’s distinction between state and process requirements is really the distinction we have made between *synchronic* state-oriented requirements and *diachronic* state-oriented requirements. So it should not be surprising that Kolodny’s view runs into the problem of rational delay. *How long*, we can ask, does the agent have to form or abandon the relevant attitudes ‘going forward’, before the agent is convicted of irrationality? Kolodny does not say, and any answer will run into the worries we’ve already raised for the diachronic state-oriented view.<sup>24</sup>

---

<sup>22</sup> Hussain (ms.) also makes remarks that suggest a process-oriented picture, claiming that rational requirements tell us “how reasoning ought to proceed” (pg. 46). But the norms Hussain endorses are all synchronic state-oriented norms we have already discussed. These do not have a procedural character, and so it is difficult to see the sense in which they describe the process of reasoning. It cannot be that a rational agent must satisfy these norms *while* they are reasoning – if an agent already satisfied the norms when they began reasoning, the reasoning itself would be pointless. Cases of rational delay happen precisely when agents rationally do not have the relevant states until *after* an extended bout of reasoning is complete. Hussain sometimes speaks of agents reasoning “with” or “according to” these requirements, but it is not clear what this involves. So I do not think we find the materials for a distinctively process-oriented account here either.

<sup>23</sup> Broome (2007, pg. 366) himself points out that Kolodny’s favored norms seem, despite his protestations, to have an awful lot to do with states and very little with processes.

<sup>24</sup> Kolodny also stops short of denying that state requirements exist; he simply thinks the debate over wide and narrow scope isn’t profitably understood in terms of states. The closest thing to an argument for a process-oriented view over a state-oriented one he gives is the suggestion that rational requirements should be guiding, and only norms about what to *do* and not norms about how to *be* can fill this role. But it seems to me one can be moved equally well by an injunction not to *be* on the grass as by

This muddling of the synchronic/diachronic and the state/process distinctions has, I believe, led philosophers to miss a promising and distinctive approach that is concerned with processes in a much more robust way. I'll begin by setting up the general process-oriented way of thinking, and then discuss how it might help with the problem of rational delay.

Processes are not features of agents at particular times, as are the time slices under the purview of the synchronist. Neither are they mere combinations of attitudes at different times, as are the jurisdiction of state-oriented diachronic norms. They are causally continuous *activities* – ways of reflecting upon and questioning attitudes or performing other cognitive labor. And their most visible representative, explicit reasoning, is a paradigm candidate for governance by rational norms.

The norms on states we've discussed tell you what states you rationally can and cannot *be in*, either at a single time, or over time. There is considerably more variety in the way processes can be rationally governed. We'd expect there to be, at least:

- 1) norms governing appropriate *initiation conditions* for a process.
- 2) norms governing when a process may be *interrupted*.
- 3) norms governing *how the process should unfold*, including a list of the steps of that process and the *order* in which they should be performed.
- 4) norms governing the *assignment of cognitive resources* to certain processes, when such resources are limited.
- 5) norms governing appropriate *conclusions* to a process.

All these norms and their interaction may be quite complex – a process of logical deduction may have different outcomes depending on whether it begins from a proposition that is believed or merely entertained, or whether its conclusion conflicts with prior beliefs or does not. They are not, in general, mere pipes from one attitude to another. But the attitudes do interact importantly with processes in our mental economy – attitudes can, among other things, *trigger* a process, serve as *inputs* in that process, or

---

an injunction not to *step* on it.

serve as *outputs* of that process. But importantly, the attitudes themselves, on the robustly process-oriented view, are not subject to norms. This differentiates the view from those like Broome's (2013), which grant a normative status to processes which is secondary, derivative, and subordinate to fundamental rational norms on states. In the same way our physical actions produce scars on our bodies, our mental activities produce attitudes in our minds. But scars, and correspondingly, attitudes themselves, are not on the process-oriented picture, norm-governed – only the activities that give rise to and manage them are. If fully rational agents, in virtue of their rationality, manifest some regularity in their attitudes, it is because those patterns are the shadows cast by properly functioning processes.

### **3.2 – Rational Delay Revisited**

The sketch I have given so far of the process-oriented view is very abstract. Working out the concrete details of the full picture is a difficult project. We should not expect a simple one-to-one correspondence between the state-oriented norms people have found attractive and process-oriented norms. There may be multiple processes which mediate the relationship between, say, our beliefs and their consequences, or which help us weed out contradictions, and each one will have norms of all the kinds described above governing them.

Neither should we be confident that a serious development of this picture is possible without deep engagement with the cognitive sciences. Before we can speculate in an informed way about the norms on processes, we may need to know things like which kinds of processes are available to human agents, what sorts of access those processes have to other parts of our mind, and what the nature and the limitations are of the cognitive resources, like attention or willpower, that engaging in those processes requires.

Because of the complex ways in which processes operate and interact with each other, and how sensitive they will be to the contingent design features of particular kinds of agents, the full process-oriented picture will probably have little of the beguiling elegance of the simplest state-oriented norms. But when reality is complicated, the theory must follow. And I have tried to show that the problem of

rational delay is a serious motivation to look for alternatives.

I will not be presenting anything like a complete account of the norms governing a process, which would be a monumental task for the reasons I've suggested. Nevertheless, something needs to be said to make it plausible that the process-oriented view has an advantage over state-oriented views. And it is not immediately obvious that it does. The fact that some proposed norm refers to processes is no guarantee that it will help with the problems associated with rational delay. For example, a norm of the form "if an agent begins process X at t1, they must complete it by t2" will be subject to similar problems of threshold choice as diachronic state-oriented views. This is good reason not to formulate process norms in this way. My task here will be to make a case that we can get interesting and substantive requirements on processes that are not subject to the same problem, and which can do at least some of the work philosophers wanted out of state-oriented principles.

Take one particular process, that of considering whether a proposition P is true. This kind of process plays an important role in connecting an agent's beliefs with their reasons for those beliefs (though it is not the only such process), so we'd expect the norms on this process to provide a partial replacement for the work done by state-oriented norms connecting reasons and belief. Here are some claims a process-oriented theorist might make about this process:

- A) It is permissible to initiate the process of considering whether P in response to a recognition that it is of practical significance whether P and one has recently come into substantial evidence that plausibly bears on whether P. It is impermissible to initiate this process when one is aware that it does not matter whether P.
- B) While engaging in the process of considering whether P, an agent is required to perform steps in the following order: Take the most salient consideration bearing on P, assess whether it bears positively or negatively on whether P, and store the weight of the reason it provides for or against P. Next, do the same thing with the next most salient consideration whether P. When all salient considerations have been taken into account, if the weight of reasons for P meets a threshold, next

conclude the process by believing P. If the weight of reasons against P meets that threshold, next conclude the process by believing  $\sim$ P. If it does neither, next conclude the process by withholding judgment on P.

- C) When considering whether P, an agent is required only to take into account *evidential* considerations bearing on P.
- D) It is permissible to interrupt the process of considering whether P in response to a recognition that new and substantial evidence bearing on P is shortly forthcoming. It is impermissible to interrupt the process of considering whether P in response to a recognition that the truth about P is likely to be uncomfortable.<sup>25</sup>

It is not important whether these are *correct* about the proper operation of the process of consideration. They are almost certainly not. B), for instance, ignores that the fact that consideration of subsequent reasons can lead us to revise the weight contributed by earlier reasons. My aim is just to illustrate how a process-oriented approach to updating might *look*, and how it allows us to make substantial rational assessments of an agent's behavior without falling prey to concerns about rational delay. Claims like A) can distinguish agents who begin processes in appropriate ways from those who do not. Claims like B) can distinguish agents who respect the weight of their reasons from those who ignore it. Claims like C) can capture the thought that evidence, and not practical considerations, play a special role in epistemic rationality. And claims like D) can distinguish agents whose path towards updating their attitudes ends prematurely for good cause from those who shut down this process inappropriately. An agent who begins this process and follows the norms will eventually end up with beliefs that are supported by the epistemic reasons they have for those beliefs. These are recognizably the sorts of things state-oriented norms relating

---

<sup>25</sup> One might wonder what *unifies* or *explains* these process-oriented norms. It would be nice to have some general theory which tells us how to come up with the requirements governing any given process. One approach would be to come up with an account of the *function* of a process, and then to suggest that the norms on a process are those the following of which conduces to the performance of its function. But this raises all kinds of difficult questions (about, for instance, how to identify the function of a process), and I will not be able to address them here. Giving a unified account of process-oriented norms may be at least as hard as giving a unified account of state-oriented norms, something about which there is very little agreement despite the long entrenchment of the state-oriented approach. So it seems fair to put it off here.

belief and evidence aimed to capture. Additional refinements may help explain why, for instance, we do not expect rational agents to steadfastly believe  $P$  and  $\sim P$  – an awareness of existing contradictory beliefs regarding  $P$  is plausibly among the initiation conditions for reconsideration whether  $P$ .

But importantly, none of these norms tell us directly *how long* this process should take, or how long an agent must take in moving from one step to the next. This means that they do not require agents to update instantaneously, like the synchronic state oriented views. Nor do they refer to some threshold duration, like the diachronic state-oriented views. On a state-oriented picture, the norms need to say something about the relationship between the times of the states involved in order to say anything at all, and for us to be able to judge when an agent has fallen short. And as we saw, views about this relationship come with problematic commitments about how long updating must take. But there are all kinds of interesting things we can say about the proper structure of a process of updating without committing ourselves to the time the updating must take.

One might worry that by abandoning norms with implications for the duration of updating condones sluggishness. But just because process norms do not *directly* contain a prohibition on ‘taking too long’ doesn’t mean they have nothing to say about agents who we ordinarily judge to be objectionably lax about updating their attitudes. We must look to the *explanation* for the delay. If the agent took a long time because they interrupted an updating process for an inappropriate reason, a process norm can convict them. If they took too long because there is something weird going on in the operation of that process, such as the agent taking into account too many things, a process norm can convict them. If they took too long because they failed to assign the appropriate cognitive resources to a process, a process norm can convict them as well. If *nothing* like this is going on, because the agent’s delay is due, for instance, simply to their slow processing speed, then the process picture will say they are rational. And this is, it seems, the correct thing to say.<sup>26</sup>

---

<sup>26</sup> One might worry that the process norms we have discussed do not yet *force* an agent to initiate a process when some condition is met, that we need norms of this kind, and that such norms will fall prey to rational delay all over. I think this tells us that we

### 3.3 – DSR\* Revisited

Let us turn back now and reconsider the last stand for state-oriented norms against the problem of rational delay, the norm we called *DSR\**. The unnatural additions it adds to the simple diachronic state-oriented approach are a) an agent-relative processing speed variable and b) the reference to “cancelling events”. These additions are out of place for a state-oriented picture, as evidenced by the fact that they are rarely included in discussions of diachronic norms, and they have the whiff of the ad-hoc about them. But they flow very naturally from a process-oriented approach.

Process norms will determine when an agent is required to allow a process to unfold. If a rational agent is in a situation where she is required to keep a process going, her processing speed works its way in automatically to determine how long it is before she forms an attitude as a conclusion of that process. From the contingent facts about her abilities, and the norms that tell her to keep turning the cognitive crank, it will simply follow that if she is rational (and therefore continues cranking), she will form her new attitudes at a time proper to her capacities and circumstance. No special agent-relative variable needs to find its way into the norm itself.

Furthermore, it is easy to understand what a cancelling event is supposed to be, on the process-oriented picture. It is simply anything that makes it permissible to interrupt or delay that process, like a raging fire in the room, or a sudden influx of new relevant information. Processes are characteristically the sort of thing that can be interrupted or stopped, and this is exactly something that we’d expect to be norm-governed from a process-oriented perspective. So on the process picture, cancelling events do not

---

should not formulate these norms as something like “if an agent is in state S at t<sub>1</sub>, then they are rationally required to initiate process P at t<sub>2</sub>”. My preferred understanding of norms requiring the initiation of a process is that they are best conceived as norms describing successive stages of a distinct higher order *monitoring* process, much like B) describes successive stages of the process of considering whether P. They tell us that when some condition is met, the next step in the monitoring process is to initiate the process one level down. It allows therefore that agents who are slower may permissibly take longer to initiate the process, while still convicting agents who *interrupt* this process of irrationality. This way of understanding initiation involves thinking that there are only norms on initiation of a process if there is a higher order monitoring process whose function is to initiate it, which is a substantial commitment. But I think it is plausible. Eventually, on this ‘processes all the way down’ model, the chain of processes initiating processes will bottom out in some very basic monitoring systems which will have no norms on their initiation – either agents are engaging in them, and therefore subject to norms on their operation, or they are not. This is speculative, but it seems plausible to me that some very basic kinds self-monitoring might even be a necessary condition on agency itself.

drop in late in the game as unpleasant ad hoc necessities, as they have in the state-oriented tradition. They're among the first things a process theorist would look for in their theory. Moreover, investigation into cancelling events becomes much easier once we recognize their nature as permissible process interruptions. It is not easy to know where to begin, on a state-oriented picture, to answer a question like "how do the cancelling events between antecedent beliefs and beliefs in their consequences differ from cancelling events between an antecedent intention and an intention for the necessary means, and why?" But once we see that what we are looking for concerns permissible process interruptions, we can investigate the structure of the processes involved in each kind of transition and hope to explain differences in relevant cancelling events through differences in these processes, discovering patterns we might miss if we conceived of cancelling events only as "an event that happens after an agent has attitude A at t1 which make it no longer irrational for them to have attitude B at t2". So the process picture demystifies the normative relevance of cancelling events, and tells us where to look if we want to figure out what they are.

As long as we have norms about when the process is triggered, when it can be interrupted, and how it concludes (and these are among the most basic candidates for norms on processes), it follows as a mere corollary that a rational agent who is in the state that triggers the process will form an attitude that is the output of that process at a time determined by her processing speed and as long as no cancelling event occurs. This is, of course, just what DSR\* asserts. So the process view has every indication of being explanatorily fundamental in relation to state-oriented diachronic norms.

We can see, now, how a process view has the resources to avoid the argument from rational delay. Such a view does not place direct demands on how long it must take for agents to update beliefs. The kinds of cases where rational delay is most conspicuous, moreover, are precisely those where a process is permissibly interrupted, or slow to run with many steps or complicated inputs, or where multiple processes must operate in succession. A filled-in process-oriented account, then, doesn't just *allow* rational delay – it promises to *explain* why, when, and to what extent rational delay occurs.

## Conclusion

I have tried to argue that there is a very large class of commonly accepted state-oriented rational requirements, of both the synchronic and diachronic variety, which fail to capture the intuitive facts about what rationality can demand of finite human agents like us. If our account of rational norms should respect our ordinary attributions of irrationality, this lends support to a process-oriented interpretation of rational norms. Not everyone will find these considerations equally compelling. As I mentioned earlier, there is a view of rational requirements on which they are to be understood as ‘ideals’ in a strong sense – able to be met only by agents with cognitive resources and abilities far beyond those of any human, and whose behavior we may approach only as the pale shadow of an approximation (Christensen (2005, 2007), Broome (2013)). On such a view, it is no objection to a proposed requirement that no human agent could satisfy it. I do not think I have given someone who for theoretical reasons strongly endorses the ideals view grounds for them to change their mind, and I cannot take up the challenge of refuting that picture here. But I am heartened by the fact that even some who explicitly commit themselves to this way of understanding rational norms are uneasy about its implications.<sup>27</sup> And there are many philosophers who reject this picture, including some who, we’ve seen, put considerable effort into developing rational norms sensitive to the limitations of ordinary people, and yet nevertheless accept state-oriented principles. The challenge posed by rational delay should loom especially large for this group. In any case, I hope that I have, at least, provided a helpful map of the conceptual terrain, pointed out the danger rational delay poses to those on the paths most traveled, and cleared the brush away from the process-oriented alternative.<sup>28</sup>

---

<sup>27</sup>“However, I am loth to adopt a requirement that goes so far beyond the abilities of human beings.” (Broome (2013), pg. 155)

<sup>28</sup> For many helpful comments on earlier versions of this material, I would like to give special acknowledgment to John Brunero, Stewart Cohen, Stephen Finlay, Niko Kolodny, Errol Lord, Jacob Ross, Jonathan Way, Ralph Wedgwood, an audience at Ohio State University, two phenomenally helpful reviewers at Philosophers’ Imprint, and especially to Mark Schroeder, whose feedback was invaluable throughout the paper’s development.

## References

- Broome, J. "Wide and narrow scope." *Mind*, 116(462), 359–370. 2007.
- Broome, John. Rationality Through Reasoning. 2013.
- Carr, Jennifer. "Don't Stop Believing." Paper presented at the Belief, Rationality, and Action over Time conference, Madison, Wisconsin, Sept. 2015.
- Christensen, David. Putting Logic in its Place. Oxford University Press. 2005.
- Christensen, David. "Does Murphy's Law Apply to Epistemology?" Oxford Studies in Epistemology 2: 3-31. 2007.
- Cohen, Stewart. "Reasons to Believe and Reasons to Act." Forthcoming in *Episteme*.
- Greenspan, Patricia. "Conditional Oughts and Hypothetical Imperatives." *The Journal of Philosophy*, Vol. 72, No. 10. pp. 259-276. 1975.
- Hedden, Brian. "Time-Slice Rationality". *Mind*, 124(494), 449-491. 2015.
- Hedden, Brian. "Mental Processes and Synchronicity". Forthcoming in *Mind*.
- Hussain, N. "The Requirements of Rationality" ms.
- Kolodny, N. "Why be rational?" *Mind*, 114(445), 509–563. 2005.
- Kolodny, N. "State or process requirements?" *Mind*, 116(462), 371–385. 2007.
- Kvanvig, J.L. and Menzel, Christopher. "The Basic Notion of Justification." *Philosophical Studies*, 59(3), 235-261. 1990
- Lam, Barry. The Dynamic Foundations of Epistemic Rationality. Dissertation. Princeton. 2007.
- Lewis, David. "Why Conditionalize?" In Papers in Metaphysics and Epistemology. Oxford. 1999.
- Lord, Errol. "The Real Symmetry Problem(s) for Wide-Scope Accounts of Rationality." *Philosophical Studies*. 170(3), 443-464. 2013.
- Lord, Errol. "The Coherent and the Rational," *Analytic Philosophy*, 55, 2. 2014.

- McCain, Kevin. "The Interventionist Account of Causation and the Basing Relation." *Philosophical Studies*, 159: 357–382. 2012.
- Meacham, Chris. "Understanding Conditionalization." Paper presented at the Belief, Rationality, and Action over Time conference, Madison, Wisconsin, Sept. 2015.
- Mellor, D.H. The Facts of Causation. Routledge. 1995.
- Moser, Paul. Knowledge and Evidence. Cambridge University Press. 1989.
- Moss, Sarah. "Time-Slice Epistemology and Action Under Indeterminacy." In Oxford Studies in Epistemology 5, Ed. Tamar Gendler and John Hawthorne, Oxford University Press, Forthcoming.
- Reisner, Andrew. "Unifying the Requirements of Rationality." *Philosophical Explorations* 12, 3. 2009.
- Scanlon, T.M. "Structural Irrationality," in Common Minds, ed. Brennan, Goodin and Smith, Oxford University Press. 2007.
- Schroeder, Mark. "The Scope of Instrumental Reason." *Philosophical Perspectives* 18, 337- 364. 2004.
- Titelbaum, Michael. "Continuing On." Paper presented at the Belief, Rationality, and Action over Time conference, Madison, Wisconsin, Sept. 2015
- Way, Jonathan. "Two accounts of the normativity of rationality." *Journal of Ethics & Social Philosophy*, 1-9. 2009.
- Wedgwood, Ralph. "Rationality as a Virtue." *Analytic Philosophy* Vol. 55, 4. 2014.
- Worsnip, Alex. "Narrow-scoping for Wide-scopers." *Synthese* 192 (8), 2015.
- Worsnip, Alex. "The Conflict of Evidence and Coherence." *Philosophical and Phenomenological Research*. Forthcoming.