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IS LOVE BASED ON REASONS?*

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ABSTRACT

The aim of the paper is to understand what is involved in the claim that a mental state in general and love in particular, is based on reasons. Love, like many other mental states, can be evaluated in various ways: it can be considered appropriate, deserved, enriching, perverse, destructive etc. but this does not mean that love is based on reasons. In this paper I present and defend a test that a mental state has to satisfy if it is to count as based on reasons. This test will be used to construct a new argument in favour of Frankfurt's position that love is not based on reasons.

Keywords: *love, reasons, Frankfurt, Kolodny*

1.Introduction

Frankfurt (Frankfurt, 1999) claims that love has no reasons; others object and find reasons for love in the qualities of the beloved (Parfit 1992:295, Abramson and Leite, 2011), or in her humanity (Velleman, 1999) or in the relationship between the lover and the beloved (Kolodny, 2003). Whether love is based on reasons depends of course on what is love and on what is reason. I have no intention of adding to the eternal discussion of what is love. On the other hand I will try to say something new about the classification of mental states into those that are based on reasons and those that are not.

It is important to stress from the start that I am not going to suggest a new conception of reason; on the contrary I am staying with the widely used conception expressed recently in Bagely: "It can be natural to think that justifying reasons must be capable of guiding prospective deliberation, or otherwise be grounded in facts that are prior to and independent of the

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responses they are to justify."[1](Bagely 2015:491). This notion of reason requires that a reason will be able to play a role in the formation, persistence, and revision of an attitude.[2] This explains why I treat the claim that an attitude has reasons and the claim that an attitude is based on reasons as equivalent. It is evident that an attitude cannot be based on reasons without having reasons. Conversely, a mental state cannot have reasons (in the sense assumed here) if it is not a state that can be based on them.

It is generally agreed that beliefs and actions are based on reasons. Many extend the group of mental states that are based on reasons to anger, pride and fear. However, no one who accepts the guidance-conception of reasons will want to extend this group to hunger, tiredness or perception. I am aware of important differences between perception and hunger; perceptions are intentional in the sense that they are about the world – and hunger is not. Still, both attitudes are not (and cannot be) guided by prospective deliberation. The facts that cause them do not justify them. The fact that there is a tree in front of me causes me to perceive it, but this fact does not justify the perception. The fact that I haven't eaten for a few hours causes me to be hungry, but it doesn't justify my hunger. A causal explanation is all that we need in order to understand these mental states. We do not think of an episode of hunger or perception as needing justification and in this respect, both hunger and perception are different from beliefs and actions. The line that passes between hunger and perception on the one hand and beliefs and actions on the other is the focus of my paper. One might want to draw the line between hunger on the one hand and perception and belief on the other; and say that every intentional state is based on reasons. However this line will not respect the guidance-conception. Elaborating on the guidance-conception of reason will lead to a test that will help to decide whether a mental state is based on reasons.

In section 2 I will show that Kolodny's examples establish only that love can be evaluated as appropriate but not that it is based on reasons. Since appropriateness is not enough to guarantee that a mental state is based on reasons, I suggest (section 3) a more demanding test. I defend this test by showing that beliefs (4.1) and actions (4.2) pass it, while perception (4.3) and hunger (4.4) do not. Furthermore, I show that my test can be derived from constraints on our conception of reason (4.5). Finally (section 5) I show that love does not pass the test.

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[1] Bagely does not endorse this conception; he believes that "The reasons of love and art are very different from those of morality and science". (2015:491) In contrast, I am interested in whether love can be based on reasons in the same sense that actions and beliefs are.

[2] I believe that Frankfurt Kolodny and other participants in the debate about love share this conception; I just make it more explicit. This is why what I conclude from this conception of reasons is relevant to the debate.

Two terminological remarks: The term mental state will be used in the widest sense, including propositional attitudes, perceptions, sensations, emotions, intentions and actions. A mental state can be described as a personal state in contrast to a sub-personal state. A mental state is a state about which we can ask: "what is it like to be in that state?" Similarly, it is a state which has a first person perspective that is different from the third person perspective. A belief, for example, is a state of the person and not of a part of him. Although it seems a bit strange to ask: "what is it like to believe that the sky is blue?" there is no doubt that the believer has a first person perspective on this belief. He has a privileged, though not infallible, access to the fact that he believes that the sky is blue. These features of beliefs are shared by the state of hunger. Hunger is a state of the whole person and not only of his digestive system. Hunger is something the agent experiences so that the question: "what is it like to be hungry?" is in place. Moreover the agent has a first person perspective on his own hunger that another person does not have. I will use the term mental state as referring to all the states that share these features.

We tend to evaluate our mental states, as well as those of others, in a variety of ways. Some of the normative/evaluative terms that we use are specific to a kind of state, for example "true" is specific to beliefs. Other terms are more general in that they apply to a variety of states; for example justified, crazy, healthy, natural, destructive etc. At this stage, it is important to note that there are evaluative judgments about a mental state which do not refer explicitly to reasons for this state; "justified by good or adequate reasons" is one appraisal among many. Moreover, some states are praised[3] or criticized in ways that never relate to reasons; for example it can be said about someone that he is always hungry at the right moment and in the right amount, and hence praise specific episodes of his hunger or lack of hunger. However those evaluations have nothing to do with reasons for hunger, since hunger is not based on reasons. The same is true of fantasies; a fantasy can be criticized for being violent and vulgar. However these evaluations do not imply that (spontaneous) fantasies are based on reasons.[4] [5]

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[3] It is important to note that praise and criticism are used as synonyms to positive and negative evaluations, ignoring the connotations of guilt. The notion of guilt is almost irrelevant to the concerns of this paper.

[4] D'arms and Jacobson (2000) discuss this plurality of evaluations and warn us against moralism which is "the imperialistic tendency of moral evaluation to take over the variety of evaluative space". My point in this section is a similar warning against the imperialistic tendency of reason-evaluation (i.e. related to reasons) to take over the variety of evaluative space.

[5] Admittedly, this is a very liberal notion of criticism and it is not intended to capture the ordinary meaning of this notion. The role of these examples is to bring into focus the need to say more about the differences between evaluating perceptions and moods on the one hand and the criticism involved in "reason evaluation".

In light of these observations the following terminology will be used: the judgments that form the wide range of appraisal and criticism will be called "evaluative-judgments". The evaluative judgments that relate to reasons will be called "reason-implying judgments".

2. Kolodny's Argument

Kolodny (Kolodny, 2003:137) discusses three kinds of considerations that suggest that love is based on reasons. First, from the first person perspective, the lover experiences his love as appropriate and fitting and when he does not experience his love as such, he thinks that something is wrong with him. Second, from the third-person perspective of an advisor or critic, we might find the love or the absence of love inappropriate, misplaced or even wrong. Third, love is connected to many other mental states that are arguably based on reasons, like motivations, desires or emotions. I will discuss here the first and second considerations since in them Kolodny uses the assumption that our practice of criticism and evaluation of a state is highly relevant to the question of whether that state is based on reasons. I share this assumption, however, I will claim that it is relevant in a less straightforward way than Kolodny assumes. The fact that a state can be criticized only shows that evaluative judgments can be applied to it, but as was shown in the previous section, evaluative judgments can be applied to states that are not based on reasons. One can criticize one's friend for being hungry every time that he is bored no matter what he ate an hour ago; but this does not imply that hunger is based on reasons. One's criticism might include various evaluative judgments like: your hunger is misplaced, confused or pathological. But the criticism will not include reason-implying judgments like: being bored is not a reason for hunger. As it stands Kolodny's argument is invalid, the fact that love can be criticized does not imply that love is based on reasons. However, one can try to improve Kolodny's argument by looking more carefully at the content of the criticisms of certain cases of love or the absence of love. One might claim that unlike the criticism against hunger, in these cases the criticism does include reason-implying judgments. Here are the three examples discussed by Kolodny:

1. We criticize the abused wife for continuing to love her husband.
2. We criticize the indifferent parent for not loving his child.
3. We criticize the fickle friend for suddenly stopping loving his friend.

I do not deny that the agents in these examples can be criticized; but it is important to examine more carefully what is involved in the criticism. When one tells the abused wife that her love for her husband is inappropriate, what exactly is one saying? Kolodny states clearly that one

is not *blaming* the abused wife since "These attitudes are not under one's direct voluntary control" (Kolodny, 2003:163). I am not sure that Kolodny is right in assuming that control is necessary for blame, but I accept his conclusion that "Whatever kind of criticism the charge of inappropriateness amounts to, it is not blame" (ibid). Kolodny does not elaborate further the question of what is involved in this charge, he only claims that the charge is similar to the one leveled against pathological fear. But this analogy does not advance the discussion at this stage since the analogy to fear is not developed enough by Kolodny, and there is nothing that Kolodny says about pathological fear that cannot be said about pathological hunger. But if the charge raised against the abused wife is similar to the charge raised against the pathologically hungry, then again the conclusion that love is based on reasons is unwarranted. Kolodny has to show that although the critic does not blame the abused wife, he thinks about her love as unjustified in the sense that she does not have a strong enough reason to continue to love her husband. Of course the critic can formulate his criticism using the term reason. But the critic of the pathologically hungry friend can do the same, he can say: "I do not blame you for being hungry, but you have no reason to be hungry now, you had a good meal an hour ago." Kolodny's argument will be valid only if it can be shown that although the criticism of the abused wife does not involve blame; it involves an appeal to reasons for love. The criticism must involve the claim that to love in these circumstances is not grounded on good reasons.

Kolodny might try to exploit the conceptual connection that arguably exists between the notion of reasons and the notion of ought or should. The critical friend can say (gently) to the abused wife that she *should* stop loving her husband, but it is absurd to tell the friend that is pathologically hungry that he should stop being hungry. For the sake of argument, I will accept that the first criticism seems a bit more natural than the second. But this difference should not be over-rated. The critic does not mean that the abused wife should stop loving her husband in the sense that reasons for loving the husband are outweighed by the reasons against loving him. It is more correct to construe the critic as saying: "It is not good for you to love him; you should do something about it". Now the analogy with the case of hunger is completely in place. The critical friend can say to his hungry friend: "this hunger is not good for you; you should *do* something about it". Alternatively, in both cases the critic can be construed as saying: "You should not base your actions on pathological love or on pathological hunger". This criticism and advice are natural and reasonable; one should not base one's eating behavior on pathological hunger and one should not base one's relationships on pathological love. But this does not mean that one should not feel hunger and love; criticisms of those states in terms of "should" make no sense.

In the second example we criticize the indifferent parent for the absence

of love. Parents have a moral duty to take the well-being of their child into consideration. In not loving his child the parent is not as a parent should be. This is correct, and indeed involves reasons, but, the reasons it involves are not reasons *for love*. The critic might be construed as blaming the parent for having kids. Alternatively the critic might be construed as advising, or even demanding that now the parent should behave as if he loves his child, or that he should go to therapy, or that he should give the child up for adoption. The critic is indeed pointing to reasons to pretend, or to go to therapy, or to give the child up for adoption, but he is not pointing to reasons to love the child. The analogy to hunger is still in place. If Arnie arrived not hungry to a special meal that Ben has prepared for him, we can blame him. But we are not blaming him for not being hungry but for example, for having eaten an hour before. Alternatively, we might advise him to eat without being hungry or to find some other solution. We are giving Arnie reasons to behave in certain ways, but we are not giving him reasons to be hungry.

In the third example, the fickle friend is rightly criticized by us. But, again this criticism does not amount to the charge that he should (or has reasons to) start caring for his friend. Our charge is more related to a flaw that we find in his character than to reasons that he has to care for his friend. This is not to say that this sort of evaluation of character has nothing to do with considerations about reasons. The fickle friend might have good reasons to improve his character and learn to be less fickle, and if he succeeds then such episodes of suddenly ceasing to love will not happen to him. The claim that the fickle friend has reasons to improve his character is not the same as the claim that he has reasons to love. Apart from that, the fickle friend has reasons to *behave* in a caring way; but here again, the crucial question is whether he has reasons to *feel* love and care. Such reason-implying judgments are not necessarily part of the criticism of the fickle friend.[6]

Notice that while Kolodny uses his interpretation of the examples as supporting his claim that love is based on reasons, I do not use my interpretation to support my claim that love is not based on reasons. Hence, my discussion and interpretation of Kolodny's examples is not designed to show that my specific interpretations of the examples are right; it is only supposed to show that Kolodny's interpretation is not the only natural reading of them. In light of the above discussion, there is nothing in the content of the criticism in Kolodny's examples that compels a distinction between the way we criticize love and the way we criticize hunger. Hence even the more elaborated version of Kolodny's argument fails. The analogy between hunger and love that was developed

[6] Aaron Smutts (2013) explains away those examples and interprets our criticisms as pointing to reasons *to act* differently in order to promote one's well being. I sympathize with the need to explain away these examples but I disagree with the idea that there is a uniform way to do it.

in this section points in the direction of the no-reason view of love, but it is not intended as a positive argument for this view of love (which will come later).

The aim of this section was to undermine the natural move from the thought that love is a mental state that can be evaluated to the claim that love is based on reasons. Though reasons and values are deeply connected, the notion of a reason-based attitude and an attitude that can be evaluated are different. The difference between these two notions is underestimated both by defenders and by opponents of the no-reason view of love, hence, a considerable part of this paper is dedicated to elaborating the difference between these two notions. This elaboration will be done by presenting and defending a test that an attitude that can be criticized must pass in order to count as reason-based.

3. Presentation of the test

In this section I suggest a test that will distinguish between hunger and other states that we all agree are not based on reasons; and beliefs and actions or intentions, states that we all agree are based on reasons. As many have pointed out, the fact that a mental state is based on reasons does not mean that it is under our voluntary control.[7] For example, although beliefs are based on reasons they are not voluntary; one cannot come to have a belief just because one wants to. It is also important to note that (*pace* Moran, 2001: 195-196) having a subject matter does not guarantee that the state is based on reasons. Perception is arguably a state with subject matter; but is not based on reasons. Fantasies and dreams also have very rich content without being based on reasons. As was shown in the previous section an attitude's capacity to be evaluated does not guarantee that it is based on reasons. The thought that motivates my test is that reasons are deeply connected to normative guidance. Reasons are supposed to guide us and guidance involves responsiveness or sensitivity to reasons. In this I will follow Scanlon's insight that what makes a state reason-based is its sensitivity to certain judgments.[8] However, the specific way in which Scanlon characterizes this sensitivity and these judgments faces some difficulties. Addressing these difficulties will bring me to the characterization of reason-based states offered in this paper. Scanlon characterizes these states "…as the class of 'judgment-sensitive attitudes'. These are attitudes that an ideally rational person would come to have whenever that person judged there to be sufficient reasons for them and that would, in an ideally rational person, 'extinguish'

[7] See for example (Moran, 2001), (Scanlon, 1998).

[8] I follow Scanlon only in attaching importance to sensitivity to judgments. I do not follow his cognitivism about desire and love.

when that person judged them not to be supported by reasons of the appropriate kind" (Scanlon, 1998:20) .

There is some circularity in Scanlon's characterization since the judgment to which the attitude has to be sensitive is a judgment about reasons for the attitude; but if the attitude is not based on reasons, there are no such judgments. This renders Scanlon's characterization useless in controversial cases. In order to avoid Scanlon's circularity, I will start with the following small correction: the judgment to which a reason-based state is sensitive will not be a judgment about reasons but any evaluative judgment. Hence the first approximation to the characterization of reason-based states is the following: *A mental state is reason-based if there are evaluative judgments such that in an ideally rational person the state is sensitive to them.*

The main problem with this new characterization lies in the role that it assigns to rationality. It is not part of the concept of rationality that an ideally rational person adopts every mental state that he evaluates positively. Suppose that Jack is hungry now, but evaluates his hunger negatively, he ate enough today, he is going to sleep soon, and the food available is not good. The fact that Jack is hungry in spite of his negative evaluative judgment has nothing to do with Jack's rationality. Even if Jack was ideally rational and the conditions were "ideal" he would be hungry. Hence, the right lesson to draw from this example has nothing to do with Jack's rationality. Instead, we should learn from this example that the fact that hunger is insensitive to evaluation is intimately connected to the claim that hunger is not a reason-based state. One might object that to infer from this example that hunger is not reason-based is premature by insisting that an appeal to Jack's rationality is relevant even in this case. If Jack judges his hunger as inappropriate he should do something about it, for example if he has a pill against hunger in his pocket he should take it. If Jack doesn't take the pill or other available means against his hunger, he is being irrational. My answer to this objection is that hunger is not reason-based exactly because even an ideally rational person needs a pill in order to stop being hungry. By contrast, the forming of a reason-based state can happen directly, a pill is not needed. Of course, 'pill' is used as a code for any manipulation that one has to do on oneself in order to be in a certain state.

Therefore Scanlon's understanding of the idea of sensitivity to judgments needs the following refinement: a mental state is sensitive to a judgment if the mere judgment can cause the appearance or disappearance of this state. Two ideas are involved in the claim that the mere judgment causes the mental state. First, from first person perspective, it seems that one didn't do anything except evaluate the state for the state to appear/ disappear, no 'pill' was needed. Second, from a third person perspective, the explanation of a subject's being in this mental state focuses on his evaluative judgments and not on his doing anything. I will call this kind

of sensitivity 'direct sensitivity' or non-manipulative sensitivity.[9]

This notion of direct sensitivity will play a crucial role in the characterization of reason-based states; by contrast, the notion of rationality will play none. Of course, there is a conceptual connection between reason-based states and rationality; the question of rationality can arise only about reason-based states. We can ask about beliefs and actions whether they are rational and we cannot ask this question about hunger. Whether we can ask this question about love is exactly the subject of this paper. But the question whether the notion of rationality is applicable to love brings us to an impasse: Kolodny assumes a positive answer and Frankfurt assumes a negative one. I bypass this impasse by suggesting a test that will not refer to rationality.

THE TEST

A mental state is reason-based only if in standard cases it is directly sensitive to some evaluative judgment about it.

The test is not an analysis of the concept of reason-based; it is a necessary condition for being a reason-based state. The main idea expressed in the test is Scanlon's idea that if a state is reason-based it is sensitive to reflection and criticism. What one thinks about one's reason-based mental states matters, and can have a direct impact on whether one is in this state or not. Reason-based states are sensitive to reflective judgments, i.e. judgments about themselves. My test adds to Scanlon's characterization the demand that the impact of one's evaluative judgments on one's reason-based attitudes should be direct. This is not because one cannot be normatively guided indirectly. One can admire a character trait like courage and try to develop this character trait. In doing so one is normatively guided by a positive evaluation of the virtue of courage and if one succeeds one is courageous. The actions that one takes in order to develop courage are directly caused by the evaluation and thus the actions are reason-based. However the courage is only indirectly caused by the evaluation,[10] so being courageous is not reason-based.

Before I argue for the adequacy of the test, a few points need clarification:

1) The test requires sensitivity 'some judgment' and not 'all judgments'.

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[9] This distinction is similar to Moran's distinction between internal responsibility and external responsibility (Moran 2001: 198-202), and to Hieronymi's distinction between evaluative control and manipulative control (Hieronymi 2006:153). Hieronymi uses this distinction in arguing why one cannot believe at will. Using her terms the conclusion of this paper can be formulated as follows: a mental state over which we have only manipulative control is not reason-based.

[10] In this sense it can be said that the agent manipulated himself. I am using the expression self-manipulation with no negative connotations. We should be wary of carrying the negative connotations of manipulating others to self-manipulating. Self-criticism is not as bad as criticizing others; and self-control generally is good while controlling others is not.

This is due to the fact that even beliefs, which are paradigmatic reason-based states, are not directly sensitive to all evaluative judgments. For example, one can judge that a certain belief will be good to have because one was offered a prize for believing it. But as a matter of empirical (or conceptual) fact one cannot do it without a pill.[11]

2) It is not enough that a mental state is sensitive to first order judgments about the world, whether these judgments are descriptive or evaluative. The judgment to which the reason-based state is sensitive must be a second order judgment; it is a judgment about the state itself. This demand raises the following objection. My belief that it is going to be sunny tomorrow is based on the reason that the weather forecast says so. I might justifiably form this belief without forming any reflective judgment about it being justified by the weather forecast. According to this objection it is sufficient that the first order recognition of the fact that the forecast says it will be sunny, played a role in the formation of a belief for that belief to be justified, thus rendering the second order superfluous. My response to this objection starts with noting that it is not sufficient that my recognition of the fact about the weather forecast caused my belief that it will be sunny. My belief has to be caused in the right way. The weather forecast might cause me to fall asleep and dream about a sunny day. This dream in turn might cause me to believe that it will be sunny tomorrow. In this case it will not be correct to say that my belief is based on the reason that the weather forecast said so. We need to say more about the role the first order judgment played in the formation of the attitude. In the following section (4.5) I will show that in explaining this causal role we need to appeal to second order judgements.

3) The test does not imply that a reason is a second order judgment. It implies only that if *A* is based on the reason *R*, then a second order judgment that connects *R* to *A* plays a causal role in the formation of *A*. The first order belief (or fact) that the weather forecast said that it will be sunny tomorrow is a reason to believe that it will be sunny tomorrow. There is nothing in my test against this claim. This claim and my test imply that a second order judgment relating this reason and my belief plays some minimal causal role in the formation of this belief.

4) This second order judgment is not necessarily a second order belief. My belief that it will be sunny tomorrow is based on the weather forecast even if I did not form an explicit belief that the forecast is a reason to believe that it will be sunny. It is enough that I see the forecast as a reason to believe what it says whether this attitude of "seeing as" is a belief or not. If the judgment is not an explicit belief, the test is less intellectualistic than might seem. It also does not add an unnecessary

[11] It might turn out that the judgments to which a reason-based state is directly sensitive are those that relate to reasons of the right kind, but the test does not presuppose an account of the distinction between the right kind of reasons and the wrong kind of reasons (for a presentation of this distinction see: Olson 2004: 295-300).

layer to the causal process of forming a belief or other attitudes.

5) According to the test, the question of whether a mental state is reason-based depends on the causal mechanism involved in the appearance or disappearance of that state. This appeal to causal mechanisms might raise the objection that the question of whether a mental state is reason-based is conceptual, while questions about causal mechanisms are empirical. The answer lies in the appeal in the test to standard or typical cases. There are almost no conceptual limitations on what can cause what,[12] weird and idiosyncratic causal connections can exist, but they are irrelevant to my test, since they are not typical. As will be shown in the next section, what happens in the typical cases is not wholly empirical.

4. Justification of the test

4.1. Beliefs pass the test

There are many kinds of evaluative judgments about beliefs, and belief is directly sensitive only to some of them. It is an advantage of the test that it does not matter to which kinds of evaluative judgments belief is directly sensitive. As long as there are some judgments to which the mental state is sensitive in this direct way, the state is reason-based.

Here is an example of such an evaluative judgment: John evaluates positively the belief that *p* because *p* is a logical conclusion of *q* and *q*→*p* which (he believes) are true. This is a judgment to which beliefs are directly sensitive. The sensitivity of belief to these evaluative judgments is manifested in two ways. The first is actual manifestation and the second is counterfactual manifestation. John might believe that q and that *q*→*p* and because he is not concentrated enough or not interested enough he does not believe that p. In cases like this, as soon as John realizes the appropriateness of the belief that p as an immediate logical consequence of *q* and *q*→*p* he will believe that p with no need for any pill or other manipulation. This is an actual manifestation of direct sensitivity in that the evaluative judgment was part of the actual cause of the belief that *p*. However, often John's evaluative judgment is causally idle: his belief that *p*, was formed and is sustained, unreflectively. In cases like this the sensitivity of the belief to the evaluative judgment has a counterfactual manifestation.[13]

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[12] The impossibility of backward causation might be an exception.

[13] I call this a counterfactual manifestation because in order to appreciate it we need to think about counterfactual scenarios. However I do not think that we can reduce the sensitivity to evaluative judgment to counterfactuals. Sensitivity to judgment is a tendency or a disposition. It is connected to counterfactuals but not reduced to them. A certain glass is fragile even if in the counterfactual situation that it is thrown on the floor someone will catch it. See Fara (2005) for a thorough defense of the claim that dispositions resist analysis in terms of counterfactuals.

The belief has a tendency to disappear in the counterfactual situation where John denies this evaluative judgment (for example he thinks that modus ponens is a fallacy, or that it is not applicable in this specific context), he will not believe that *p*. Note that the claim is not the normative claim that in a case like this one should not believe that *p*; but the empirical claim that in such cases the belief tends to disappear. Here too sensitivity is direct, since in these counterfactual situations John doesn't need any pill in order to reject the belief that *p*. What I showed is that John's belief is not only sensitive to his belief that *q* and to his belief that $q \rightarrow p$; but also to John's evaluation of this belief as appropriate in those circumstances; so beliefs are sensitive to second order judgments.

Not only beliefs that are formed through reasoning exhibit sensitivity to evaluative judgments; perceptual beliefs, the paradigmatic non-inferential beliefs, are also directly sensitive to evaluative judgments. Again, one generally does not need an evaluative judgment in order to move from perception to belief. But sometimes one does, for example, Sarah sees a broken stick in a glass cup and suspends judgment because she suspects that she is having an optical illusion (she suspects that there is water in the glass). If Sarah understands that she is not under an optical illusion and judges that it is appropriate to base her belief on her perceptual experience, then she will believe that the stick is broken. This is an actual manifestation of the sensitivity of belief to an evaluative judgment.

The counterfactual manifestation of the sensitivity of perceptual beliefs is more common. When one has a perceptual belief, the following counterfactual tends to be true: if one had judged that in these specific circumstances the perception (or alleged perception), does not make the belief appropriate, one would not believe that *p*. Realizing that one is under an optical illusion is one example, but there are others: one might discover some problem with one's eyesight or with the lighting conditions, and as a result evaluate one's belief negatively. In all these cases the belief simply disappears as a result of the denial of the evaluative judgment. It is not that one realizes that the belief is inappropriate and then looks for means or pills to extinguish it, the sensitivity is direct.

My discussion in this subsection is both empirical and conceptual. It is a partial description of the causal mechanisms that govern belief formation and extinction, and in this sense it is empirical. The discussion is also conceptual. If a belief would never disappear in the face of the evaluative judgments discussed above we would say that it is irrational, but if all beliefs behaved like this irrational belief, we would hesitate to call them beliefs. The conceptual connection between belief and sensitivity is even stronger. For instance, if one comes to think that one has strong reasons to give up one’s religious belief but does not do it, we will say that one's belief is irrational. But if one's religious belief lost its sensitivity completely so that no evaluative judgment has the slightest chance to

shake it; we would hesitate to call it a belief; we might call it dogma. This is not a mere terminological point; there is a conceptual place for a recalcitrant belief; but there is a minimal degree of sensitivity that a mental state has to have in order to count as belief.[14]

4.2. Actions and intentions pass the test

The evaluative judgment that swimming will be fun often causes one to swim. The action is not formed by manipulation on oneself; it is caused directly by the judgment.[15] It was assumed in this example that the judgment that swimming will be fun is evaluative. If this assumption is rejected and the judgment is treated as merely descriptive then we should look at other judgments. For example, if one is mourning and evaluates having fun as inappropriate, one will not swim. Again, one does not need to manipulate oneself in order to avoid swimming. This sensitivity to the evaluative judgment is direct and it shows that actions also pass the test.

Intentions are sensitive to evaluative judgments about actions, but this does not imply that intentions pass my test. I need to show that intentions are sensitive to evaluative judgments about themselves. Intentions like beliefs are not sensitive to every evaluative judgment about themselves. Belief is not (directly) sensitive to the judgment that one will get a prize if one believes that one has exactly 3000 hairs. Similarly, intention is not sensitive to the judgment that if one intends to drink the toxin one will get a prize whether one drinks the toxin or not.[16] In order to show that intentions pass the test all I have to show is that there are some second order judgments to which intentions are sensitive. I submit that my intention to swim is sensitive to the following evaluative judgment: intending to swim now is appropriate since it will lead me to swim. Although this evaluative judgment is derived from an evaluative judgment about the swimming, it is a judgment about the intention to swim. Hence intentions pass my test.

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[14] It might be suggested that religious beliefs are hybrid in the following sense, they are formed for reasons but after they are formed they lose their sensitivity to evaluative judgments. I am afraid that doing justice to the possibility of "mixed" states will take us too far from the main concerns of this paper.

[15] Notice that no version of internalism is assumed here. Even if extreme externalism is correct and judgments without desire never cause action; when an evaluative judgment with the corresponding desire causes action, it generally happens without manipulation. In marginal cases one is weak-willed and uses, more or less successfully, manipulation to cause oneself to swim.

[16] See Kavka (1983)

4.3. Perception does not pass test

If one knows that one is under an optical illusion and evaluates one's perception as inadequate, one's perception is completely insensitive to this evaluation. This, of course, is not enough to establish that perception does not pass my test; it has to be shown that perception is not directly sensitive to any evaluative judgment. Notice that the fact that perception is not under our voluntary control will not help us here, since as already mentioned, voluntary control is not a necessary condition for being a reason-based state. The thesis of belief independence might help to convince us that perception is never sensitive to belief. In cases of optical illusions, perception is completely isolated from one's beliefs; whatever one knows about the situation, one's perception will not change.

However, in normal cases perception is not completely independent, and here is a simple example: I look at my armchair and I see (or have a visual impression of) my black cat sleeping there. When I realize that I've just opened the door and the cat left, and I remember that I left my black coat on the armchair last night, my perception alters. I see (or have a visual impression of) my coat thrown on the armchair.[17] It is crucial to explain why this example does not threaten the adequacy of my test. The beliefs that caused my perceiving the cat to disappear and my perceiving the coat to appear are not evaluative beliefs. They are factual beliefs: the cat went out and I left the coat on the armchair. No evaluative judgment was involved in the process; it is not that I thought something like: it is crazy to perceive a cat on the armchair when there is a coat there, and then as a result of this thought my perception altered. Whether I hold this judgment or not, it plays no role in the explanation of the change in my perception.

In some cases, perception can change as a result of one's first order evaluative judgments; think about how your perception of a facial expression changes if you discover that the person you are looking at is not kind as you thought but manipulative and mean. But even in such cases it is a first order evaluative belief (about the person in front of you) that affects your perception and not a second order belief (about your perception). In sum, the extreme version of the belief-independence thesis is wrong; perception can be causally influenced by beliefs; but only by first order beliefs. What if X perceives a cow in front of him whenever he believes that the perception of a cow will represent what is in front of him? Such idiosyncratic causal mechanisms might exist, but they cannot be typical. This is because the function of perception is to guide one in one's beliefs about objects in one's surroundings. It cannot fulfill this role

[17] Of course there are different accounts of perception and some theorists of perception will conceptualize the familiar phenomena that I described, differently. For the discussion that follows it suffices that my conceptualization is plausible.

if it is too sensitive to what one believes about one's surroundings independently of perception. Otherwise, perception will be like a movie guide that recommends that one goes to the movie that one was planning to go to anyway.

4.4. Hunger does not pass the test

As already seen in previous sections we can evaluate an episode of hunger in various ways. Our pathologically hungry friend is hungry whenever he is bored and we criticize him for that: his hunger is inappropriate since it is not related to his body's need for food or to the pleasure of eating. Our friend accepts this criticism, he judges his hunger as inappropriate, but this judgment is causally impotent in regard to his hunger. Of course, this does not show that all evaluative judgments are causally impotent. As in the case of perception, we cannot rely on a general thesis that hunger is never sensitive to beliefs. Hunger is sometimes caused by one's realization that one did not eat all day, one might become hungry when one comes to know about a wonderful meal that is waiting, and one can lose one's appetite and become less hungry if one believes the meal that is waiting will be horrible. These examples are personal, but not idiosyncratic in that we all recognize and understand them. Notice that in all these examples the beliefs that had causal impact on the hunger or its disappearance were first order beliefs. They were factual beliefs (that one did not eat all day) or evaluative beliefs about the food. But no second order beliefs about the value of being hungry in those circumstances played a causal role in the (dis)appearance of hunger. Still, there might be strange cases where X's belief that it will be good to be hungry now causes him to be hungry, and this might happen without manipulation. The fact that I cannot find such an example is not an argument to the effect that such strange causal mechanisms never exist. However, such causal mechanisms, if they exist, are not typical. This is because the function of hunger is to guide us to eat. If all works well we are hungry when eating is the right thing to do, or at least when there are good reasons to eat. In this sense hunger functions as data for the decision whether to eat. If hunger were often sensitive to evaluative judgments that have nothing to do with the need to eat, it would be poor data and hence could not function as a guide. On the other hand, if hunger were typically sensitive to evaluative judgments like: "it will be good to be hungry now, since it is time to eat" hunger would be superfluous as a guide.

4.5. An outline for a general justification of the test

That my test fits the paradigmatic cases speaks in favor of it, but it does not guarantee that the test fits the less paradigmatic cases. Maybe my test

points to a feature that distinguishes between hunger and perception on one hand, and beliefs and actions on the other hand, but this feature is not the one we are interested in. To fill part of this gap, I conclude this section with an argument that shows that reason-based states must pass the test.

> Premise 1-If a state is reason-based; it can be normatively guided in the sense that one can be in that state for a reason.

This premise expresses a very moderate form of internalism. It is internalist in that it demands that reason and motivation will be conceptually connected. It is moderate in that it is not claimed here that a (perceived) reason must motivate, only that it can motivate.[18]

Actually, my premise is even weaker, I do not claim that every reason can motivate, I only claim that every mental state that is based on reasons can be motivated by some reason. The premise is a generalization about states and not about reasons. In the next two premises I elaborate on the notion of being in a state for a reason.

> Premise 2- If S is in the mental state M for the reason R, then S's judgment that R plays a role in the causal explanation of S being in the state M. This causal explanation cannot be too idiosyncratic; otherwise, it tells us more about S than about the mental state.
>
> Premise 3- The causal role of the judgment that R must be of the right kind.

These premises are not uncontroversial, but still they are well motivated independently of the question of this paper. One can reject even the moderate internalism expressed in the first premise and deny any conceptual connection between reasons for a mental state and the question of why a subject is in that state. I object to this extreme externalism since it leads to a notion of reason which is irrelevant to reasons' central theoretical role, which is to account for the idea of normative guidance. We are normatively guided beings because we have the capacity to be moved by reasons. A notion of reason that is conceptually detached from this capacity cannot fulfill this theoretical role.

Regarding the second premise, one can reject the causal interpretation of normative guidance. One can agree with Anscombe that being in a mental state M for the reason R is connected to the fact that in answering the question "Why are you in state M?" you point to R; but neither the question nor the answer is about causes. My discussion of reasons in this

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[18] This moderate claim is accepted even by some externalists. For ex. Parfit writes "Reasons are things to which at least some people might respond," (2011;51). Notice also that if this moderate claim is accepted it is true for warranting reasons as well. Reasons for which we respond are not necessarily motivationally sufficient, but they are always part of the causal explanation of our response.

paper is in causal terms; this is partly for dialectical reasons, the discussion is often couched in these terms (Kolodny 2003:162), and partly because I agree with Davidson that reasons (or appreciation of them) are (or can be) causes.

The main objection to the third premise is that unless we give an account of the right kind of causation, the premise is uninformative. I cannot offer such an account, but I want to suggest two constraints that will substantiate the third premise.

The first constraint is that when a judgment causes an attitude in the right way, the causation is non-manipulative. If the judgment in favor of M causes one to bring it about that one will be in the state M, it is not the right kind of causation.

The second constraint is that R causes A in the right way only if the judgment that R is a reason for M has a place in the causal explanation of the state M. This constraint expresses a reflective conception of reasons in the sense that when we are in a mental state for a reason we are not just "reason–trackers", but reason-followers. (Jones, 2003:190) In being hungry when our body needs food we are reason -trackers; since our hunger causes us to eat when our body needs it. In perceiving a tree when there is a tree in front of us we are reason-trackers since our perception causes us to believe that there is a tree in front us when there is a tree in front of us. However when we eat or believe that there is a tree in front of us we are also reason-followers; eating and believing are not only reliably correlated with reasons, they are normatively guided by them. Reason-followers respond to reasons as reasons; their recognition of a reason as a reason plays a part in the explanation of their beliefs and actions. Recognizing a reason as a reason for A is an evaluative judgment about A. This judgment that does not have to be an explicit belief and its role in the causal story may be only potential. But if the causal story has no place for the agent's relation to R as a reason, then R does not cause M in the right way. That is why A cannot be reason-based without being sensitive to second order judgments.

The argument:

If M is based on reasons then there is some R such that S is in the state M for the reason R (first premise). In typical cases the fact that S judges that R causes M (second premise). The causation is of the right kind, hence by the second constraint the reflective judgment that R is a reason for M, needs to play a role in the causal story. Hence M is sensitive to the judgment that R is a reason for M. The sensitivity is direct since according to the second constraint, the transition from the judgment that R to M does not involve manipulation. The judgment that R is a reason for M is an evaluative judgment about M and M is sensitive to it. Therefore M passes the test.

The argument does not prove that the test is an adequate characterization of reason-based states; it only proves that the test is a necessary condition for being reason-based, this is all that is needed for the argument in the next section.

5. Application of the test: what about love?

In order to show that love does not pass the test, it has to be shown that in standard cases love is not directly sensitive to any evaluative judgment about itself. Let's go back to the examples discussed in section 2.

The love of the abused wife is usually evaluated negatively, and one might assume that the abused wife shares this evaluation and judges that it will be for the best if she stops loving her husband. Unfortunately, this judgment alone will not cause her to stop loving him even if this judgment is her final evaluation in the sense that she took into account the all the other considerations against stopping loving her husband.[19] This final judgment can give rise to various adequate responses: she can decide to leave him; she can complain to the police, she can go to therapy etc. All these actions might finally cause her to stop loving, but only indirectly. This case is analogous to the case where one believes that it will be for the best if one will not be hungry now. This judgment by itself does not extinguish the hunger, but it can give rise to direct responses that in the end will extinguish the hunger, like drinking water, taking a pill or going for a walk. The abused wife can say: "He was cruel to me and that is why I left him, unfortunately I still love him and miss him; I hope that it will pass with time or when I meet someone new." This is a perfectly sensible response to the cruelty of the husband. If the cruelty of the husband were a reason to stop loving him this response would have struck us as completely irrational.

The plausibility of the above scenario is not enough in order to establish the general claim that the love of the abused wife is never sensitive to evaluative judgments. The following scenario seems to threaten this general claim: The abused wife might say: "When I realized how cruel he is, I stopped loving him". In this case the evaluative judgment that he is cruel did cause the disappearance of love. Although this scenario is unfortunately less frequent, I do not want to deny that this is a possible scenario as well. What I will argue is that in spite of the important differences between love and hunger, this scenario is very similar to the case when one stops being hungry because one realizes that the food that is going to be served soon is horrible. In both cases a belief caused a change in the mental state; the belief that the husband is cruel causes the

[19] The judgment that she should stop loving him might cause her to desire to stop loving him, but not to stop loving him; at least not directly.

wife to stop loving him, and in a similar way the belief that the food will be horrible causes one to stop being hungry. In both cases the belief is evaluative, "horrible food" and "cruel husband" are evaluative terms.[20]

Both of the above cases, although not frequent, are not idiosyncratic. The reason why the sensitivity of hunger to the evaluative belief about the food does not show that hunger passes my test, is that the evaluative belief is not about the state of hunger, but about the food. Analogously, the evaluative belief that caused the wife to stop loving her husband was not about the state of love, but about the husband. The causal explanation of the fact that the abused wife stopped loving her husband does not contain a further evaluative belief about the state such as: "it is sick to love a cruel husband". It is easy to imagine a case where the abused wife stops loving her husband while believing that a good wife should continue to love her husband in such circumstances. In the cases where the abused wife does believe that it is horrible to love a cruel husband, this belief does not play a role in the explanation of her stopping loving him. To conclude, the example of the abused wife suggests that love does not pass my test.

The indifferent parent might evaluate his lack of love for his children as horrible, but again this evaluative judgment will not by itself create love. This is not because love is involuntary; we cannot love at will as we cannot believe at will. Still, one often believes a proposition because one recognizes an absurdity in not believing it, but there is no such psychological mechanism that moves one from the recognition that one's lack of love is horrible, directly to the emergence of love. A positive evaluation of parental love plays no direct causal role in one's love for one's children.

The friend who suddenly stops caring about his best friend is probably exhibiting a negative character trait. He might recognize this negative trait and criticize himself for not caring for his friend and this criticism might lead him to take various courses of action. He might pretend, confess, avoid or…. find a pill that brings love again. Caring and loving again is not one of the options that are open to him without manipulation.

All these examples show that love and absence of love can be evaluated positively or negatively in various ways; but love is not directly sensitive to any of these evaluations. Love does not pass the test; hence it is not a mental state that is based on reasons. The understanding that love is not based on reasons does not imply that we are impotent and that all we can do is fall in and out of love. We can control many of our emotions and attitudes by manipulation just as we sometimes control by manipulation

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[20] Some will say that he does not deserve her love but no one will say that the food does not deserve one's hunger. I believe that this linguistic consideration is far from conclusive, since we also do not say that this proposition deserves to be believed. Apart from that, I do not believe that love is a matter of desert, but this is another subject.

the attitudes of our children.[21] We are not impotent since we can give them, and ourselves, a good emotional education.

6. Summary

Schematically, we can divide our mental states into three groups.[22] The first group includes mainly bodily sensations; mental states in this group are the least sensitive to beliefs. They are caused by conditions of our body and our environment and not by our beliefs about these conditions. The second group includes mainly emotions (some emotions might belong to the third group), and they are often caused by our beliefs about the world. The mental states in this group are causally sensitive to descriptive as well as evaluative beliefs about the world; but they are not sensitive to reflective evaluation. The states that are sensitive to reflective evaluation belong to the third group. One's beliefs and actions are caused (partly) by what we think about how we should believe and act. That is why beliefs and actions are the paradigmatic mental states in the third group.

This schematic classification might clarify the general picture emerging from my paper. The distinction between the first group and the second group is a matter of degree. First, even bodily sensations are not completely isolated from beliefs. Second, emotions are not caused only by beliefs, one loves because of the interaction with one's beloved and not only because what one believes about this interaction. It is true that love is much more sensitive to beliefs than hunger, that is why love belongs to the second group and hunger belongs to the first group. This difference in degree is significant partly because it explains why one's love life is more important to one's identity than one's "hunger life". However, for the concerns of this paper this difference is less significant than the difference between the second group and the third one. Only the mental states in the third group are based on reasons in the sense that they appear or disappear because (we believe) they should. Only in regard to them we are reason-followers and not just reason-trackers.[23]

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[21] I disagree with Moran that manipulating ourselves is alienating; sometimes in such manipulations we take responsibility about ourselves in a way that takes into account who we are better than when we are spontaneous.

[22] I am not suggesting anything new in this division, something roughly along these lines dates back to Plato's partition of the soul to appetite, spirit and reason.

[23] Actions and beliefs belong to the third group. I have intentionally left the question about anger, pride and fear open. Arguably they belong to the third group as well, and my intuition is that if they do it is because they involve judgments. Love is different from anger and pride in that it does not judge.

This sense is central to the notion of a reason-based state since it shows how such states are normatively guided. Whether these states obtain or not depends on our norms about them. Hence if I have succeeded in showing that love does not pass the line between the second group and the third group, the conclusion that love is not based on reasons is established.

REFERENCES

Abramson, K. and Leite, A. 2011. Love as a Reactive Emotion, The Philosophical Quarterly, 61: 673-699.

Anscombe, E. 1957. Intention, Oxford: Blackwell.

Bagley, B. 2015. Loving someone in particular, Ethics, 125. 2:477-507.

D'arms and Jacobson. 2000. The moralistic Fallacy, Philosophy and Phenomenological Research, Vol. LXI: 65-90.

Fara, M. 2005. Dispositions and Habituals, Noûs, 39:43–82

Frankfurt, H. 1999. On Caring, in Necessity, Volition and Love, Cambridge: Cambridge University Press.

Hieronymi, P. 2006. Controlling Attitudes, Pacific Philosophical Quarterly, 87: 45-74.

Jones, K. 2003. Emotion, Weakness of Will, and the Normative Conception of Agency, in Philosophy and the Emotions, A. Hatzimoysis ed., Cambridge: Cambridge University Press.

Kavka, G. 1983. The Toxin Puzzle, Analysis, 1: 33-36.

Kolodny, N. 2003. Love as Valuing a Relationship, Philosophical Review, 112.2: 135-189.

Moran, R. 2001. Authority and Estrangement: an Essay on Self-Knowledge, Princeton: Princeton University Press.

Moran, R. 2002. Frankfurt on Identification: Ambiguities of Activity in Mental Life, in Contours of Agency: Essays on Themes from Harry Frankfurt, Buss, S. Ed, Cambridge: MIT Press, 2002: 189-217.

Olson, J. 2004. Buck passing and the wrong kind of reasons, The Philosophical Quarterly, 215: 295-300.

Parfit, D. 1992. Reasons and Persons, Oxford: Oxford University Press.

Parfit, D. 2011. On What Matters, Volume I, Oxford: Oxford University Press.

Scanlon, T. 1998. What we Owe to Each Other, Cambridge: Harvard University Press.

Smutts, A. 2013. In Defense of the No-Reasons View of Love, Unpublished draft.

Velleman, D. 1999. Love as a Moral Emotion, Ethics, 109 338-74.

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HERE GOES NOTHING*

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ABSTRACT

Subtraction arguments (SAs) support the view that there might have been nothing. The best-developed SA to date, due to David Efird and Tom Stoneham, is claimed by its authors to entail that there are worlds in which there are space-time points but no concrete objects: Efird and Stoneham hold that space-time points are not concrete and that a world made up from them alone contains nothing concrete. In this paper it is argued that whole space-times are concrete and subtractable, so that a subtraction argument commits us to a bolder conclusion: namely, that there are worlds in which there is no space-time (and nothing else concrete). This result has far-reaching consequences: it supports the view that there might have been no time; and constrains accounts of possible worlds. In the course of developing this revised subtraction argument, I counter suggestions (made by Ross Cameron, amongst others) that SAs are question-begging.

Keywords: *subtraction argument, metaphysical nihilism, material objects, concrete objects, space-time, possible worlds, empty world*

Some are inclined to believe that there might have been nothing—at least, that there might have been nothing *concrete*—but one might wonder whether any support can be given for this view beyond brute intuition. Is there anything that might be said to persuade at least some of those undecided or in doubt with regard to whether this is a real possibility? It seems so. In his 1996, Tom Baldwin presented an argument for the claim that there might have been nothing concrete: the subtraction argument. Baldwin's paper generated further discussion and debate, including an impressive sequence of papers by David Efird and Tom Stoneham in which the argument is developed and refined and its wider significance explored (see Efird and Stoneham 2005a, 2005b, 2006, 2009a, 2009b).

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Subtraction arguments are intrinsically interesting, but they also have potential knock-on consequences. For one thing, as Efird and Stoneham make clear, a subtraction argument might set constraints on accounts of the nature of possible worlds: if there is a plausible argument for the claim that there might be nothing concrete, then any account of what possible worlds *are* which ruled out there being nothing concrete would at least incur a cost.[1] For another, subtraction arguments might have more specific consequences in terms of committing us to the existence of possibilities of certain kinds: for instance, a subtraction argument might show that it is possible for there to be no time (that there are timeless worlds). In this paper I won't say much more about these potential consequences; I'll simply to try to gauge the persuasive force of subtraction arguments and give some consideration to the question of what sorts of possibilities they press us to acknowledge.

1. Baldwin's original argument

Baldwin's argument depends upon three claims:

(A1) There might be a world with a finite domain of 'concrete' objects

(A2) These objects are, each of them, things which might not exist

(A3) The nonexistence of any one of these things does not necessitate the existence of any other such things (Baldwin 1996, 232)

The argument then runs roughly as follows. By A1, it could be that there are finitely many concrete objects. By A2, were it to be that there were finitely many concrete objects, then for any one of those objects, it could be that that object not exist. By A3, that would *not* require that something other than those original finitely many exist. And it seems that by repeating these steps we can infer by stages to the possibility of a world containing no concrete objects, establishing metaphysical nihilism (MN).

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[1] Here the distinction between accounts of *what possible worlds are* (accounts of the *nature* of possible worlds), on the one hand, and determinations of *what possible worlds there are* (of what possibilities there are), on the other, is crucial. A successful subtraction argument would show that there is a possibility of a certain kind (e.g. that it is possible that there be no concrete things). It would constrain accounts of the nature of worlds by rendering implausible those accounts of the nature of worlds which cannot furnish a world which corresponds to that possibility. For example, if a subtraction argument shows that it is possible for there to be no space-time (and no space and no time) and Lewisian modal realism requires that each possible world is a maximal spatiotemporal sum, then LMR may be undermined because none of its worlds correspond to the crucial possibility. For more on how subtraction arguments might constrain accounts of the nature of possible worlds, see e.g. Efird and Stoneham 2005b, 21–3.

Note that (A1) and (A2) are not strictly separate premisses: what we need is that it is possible that there be only finitely many concrete objects all of which are contingent. Claim (A3) is a plausible thesis about contingent objects.

2. Efird and Stoneham's revision of the argument

Alexander Paseau (2002) objected to the argument as formulated, claiming that the premisses do not entail MN, because (A3) as stated by Baldwin leaves it open to counter-models. (The key point here is that (A3) as stated can be satisfied by models in which (a) each particular object that could exist is contingent, and (b) for any particular object, there is no one object which exists in all possibilities in which that object does not exist, but (c) there is no empty world—e.g. $\{a,b\}$, $\{a,c\}$, $\{b,c\}$, $\{a\}$, $\{b\}$, $\{c\}$.)

David Efird and Tom Stoneham deal with this by providing the following replacement for (A3). This replacement, they plausibly claim, captures the spirit of subtraction (Efird and Stoneham 2005a, 309):

(B) $\forall w_1 \, \forall x(E!xw_1 \supset \exists w_2(\neg E!xw_2 \, \& \, \forall y(E!yw_2 \supset E!yw_1)))$

That is, every particular possible world w_1 is such that every particular thing x that exists at that world is such that there is another possible world w_2 which is such that x does not exist at that world (w_2), and everything that exists at that world (w_2) is something which exists at w_1. (Here object variables range unrestrictedly over concrete objects. See E&S 2005a, 306 n. 12.)

Now, it has been suggested that E&S's formulation of SA is question-begging. This is an important issue to which we will return later in the paper, but we can note here that (B) in and of itself is not question-begging: it does not, on its own, entail MN. If there is no world containing only finitely many concrete objects, (B) might be true and yet there be no 'empty' world.

One further concern that might be voiced at this point arises because (B) seems to be a thesis *about worlds* (see Efird and Stoneham 2005a, 320). This might seem to entail that the plausibility of (B) will be dependent upon views about the *nature* of worlds. Efird and Stoneham are concerned about this because they are interested in subtraction arguments acting as a *constraint* on accounts of worlds. I am concerned about it because it threatens to make other conclusions drawn from subtraction arguments (e.g. that there might have been no time) dependent upon particular metaphysical views on the nature of worlds, thus limiting their force, scope, and appeal.

This concern can be addressed by framing a principle which fulfils the role of E&S's (B) within a subtraction argument but which does not refer

to or quantify over worlds, making it clear that the notion of subtractability applies to objects. This can be done by using plural quantification, as follows:

> Necessarily, if there are some (contingent) objects (that exist) *X*, such that every object (that exists) *x* is one of those objects *X*, then, for each object (that exists) *y*, it could have been *both* that *y* does not exist *and* that every object (that exists) *z* is one of those objects *X*

(E&S make some use of what are effectively plural logic formulations in their 2005a, but do not bring the formulations to bear on this issue.)

3. Characterizing concreteness: a first try

So, it seems that we can formulate a valid and non-question-begging subtraction argument. But, crucially, in order to secure it as well supported by pre-philosophical intuition, we need to clarify the sense of 'concrete' which applies and ensure that the premisses are intuitively plausible given that reading (see E&S 2005a, 310).

Efird and Stoneham offer this initial characterization of concreteness (2005a, 310):

> An object *x* is concrete iff *x* is spatiotemporally located and *x* has intrinsic qualities

E&S say that this classes space-time points as abstract: they admit that space-time points are spatiotemporally located, but claim that they lack intrinsic properties (2005a, 312). E&S claim that this is an acceptable result

> since a world which contained only spacetime points would contain nothing which had any intrinsic properties, and a world like that would be a world which might as well contain nothing at all from the perspective of the question, 'Why is there something rather than nothing?' (E&S 2005a, 312)

This is dubious. I will present two arguments against the view. Before I do that, however, another issue needs to be addressed.

4. Space-times and space-time points are contingent

I will argue below that whole space-times are concrete things and subtractable. If whole space-times are to be subtractable, they will have to be contingent. Are they?

It seems that, if there is one finite but unbounded space-time, then there might have been a greater number of such space-times. If that is right

then at least some space-times are contingent, but there seems no reason to suppose that the first (or any other) should differ from the others in this regard. (This is one point at which views about the nature of possible worlds might seem to threaten to make a difference: it might seem that different results might be returned depending on whether or not Lewisian modal realism obtains with regard to worlds. The worry here would be that Lewisian modal realism rules out there being possibilities containing multiple finite unbounded universes. There is, however, no difference in the final result if LMR is correct. In Lewis's metaphysics, whole space-times—and space-time points—are world-bound individuals: strictly speaking, they exist *at* only one Lewisian possible world and are thus contingent by the lights of Lewis's account of modality.)

It might be suggested in response that, when we speak of 'whole space-times', what we are in fact talking about are just *sets* of space-time points (this suggestion was made in conversation by Tom Stoneham). This threatens the brief argument for contingency sketched above, because, thanks to the fact that there are continuum-many space-time points, two or more finite but unbounded arrangements of space-time points could be made up from the same set of points as might make up one finite but unbounded arrangement. (This observation seems not to undermine the claim of contingency where a Lewisian view of worlds obtains, but it does need to be answered on other views of worlds.) There are four points we can offer by way of response to this 'sets' proposal.

First, surely a whole space-time consists of space-time points *standing in spatiotemporal relations*, but if the 'set' claim were correct then it would seem to follow that a set of space-time points (on this view, a space-time) might form a single unified (spatiotemporal) arrangement in one possibility and exist in another possibility in an utterly fragmented state —i.e. with none of its members standing in spatiotemporal relations to one another. It seems, therefore, that the set of points *cannot* be identical with the original unified space-time.

Secondly, it seems that an arrangement of space-time points is a something; and that, where there are two such arrangements, one is, obviously, distinct from the other, so neither can be identical with the one there might have been.

Thirdly, it seems that space-time *points* are themselves contingent things (on Lewisian GMR *and* on other views of worlds). There are three key observations we can make in support of this view. (I offer these observations in order of increasing force, ending with what seems the most forceful point in favour of the view.) (O1) It seems that the space-time points of the actual world are 3+1 points (they are arrayed, we will assume, in three spatial and one temporal dimension), but it seems that 1+1, 2+1, 4+1, … , worlds are possible (and perhaps even 3+2 and 3+3 worlds). Further, it is plausible, for instance, that 3+1 points are distinct

from 4+1 and 3+2 points, so that different points must be involved depending on which possibility is realized. (O2) It seems that there could have been a Newtonian world—a world in which a framework of *spatial* points endured through time—so that there would be, strictly speaking, no *space-time* points (that is, no items which are fundamental components of the spatio-temporal framework of the world and both spatially unextended *and* momentary). (O3) It seems that there could be a world with continuous branching time (so that it can be that, at each moment, time divides into indefinitely many branches), but branching time is not *necessary*. The cardinality of the set of points constituting such a densely branching world would be larger than the cardinality of a set of points needed to constitute a world without such branching. Now, it *could* be maintained that space-time points are necessary existents and the larger set of points exists (even if not all of its points are 'used' to constitute space-time), but we should note some further considerations which count against this move, as follows. (i) The resulting account posits a necessary truth which alternative accounts do not, namely that this very large set of space-time points exists (on this sort of cost associated with metaphysical theories, see E&S 2005b, 25–6). (ii) The proposed account identifies space-time with a set of space-time points, but now we encounter at least one puzzle. In those possibilities where time does not branch, some but not all of the points in the set are arranged to form *something*—a structure in which events do, or at least could, occur—but this something is not, we are to suppose, space-time (because space-time, according to the view under consideration, is the whole set of points, and not all of the members of that set are parts of the structure). One might also ask for an account of the difference, in such a possibility, between those points which are, and those points which are not, included in the structure. It would be very tempting—given the suggestion that the large set of space-time points exists necessarily, *at least as abstract things*—to adopt a Williamson-style view (Williamson 2002) and say that the points included in the structure are (contingently) concrete, whereas the 'unused' points remain abstract. But this, of course, would be to give up on the idea that space-time points are never concrete. (There are yet further potential costs to the view which has the large set of points necessarily existing: for one, it threatens to multiply hugely the range of possibilities, because there will be otherwise indistinguishable but distinct possibilities which vary *only* in terms of *which* points are included in a non-branching structure.)

5. Two arguments against the view that a world comprised only of space-time points effectively contains nothing from the perspective of the question 'Why is there something rather than nothing?'

Recall that Efird and Stoneham said that

> a world which contained only spacetime points would contain nothing which had any intrinsic properties, and a world like that would be a world which might as well contain nothing at all from the perspective of the question, 'Why is there something rather than nothing?' (E&S 2005a, 312)

I want to make two objections to this suggestion. (Both objections are plausibly telling, but the second is the more forceful.)

(1) If space-times and space-time points are alike classed as abstract items, then a puzzle arises concerning their status—and the generation of this puzzle or mystery casts doubt on the classification. Space-times and space-time points are contingent items (as argued above), so they do not number among the *necessary* abstract objects; but neither do they fall into the other class of abstract objects which seem intelligible (and which Efird and Stoneham countenance)—that is, things, like the centre of mass of the earth, which are *parasitic* upon concrete objects and thus exist only where there are concrete things to be parasitic upon. (At least, *whole* space-times do not seem to be parasitic in this way: space-time *points* might be thought to be parasitic—upon whole space-times.)

(2) It seems it is simply not true that 'a world which contained only space-time points would contain nothing which had any intrinsic properties'. Efird and Stoneham speak only about space-time points and simply overlook spatiotemporal *regions* and *whole* space-times. Spatiotemporal regions and whole space-times are spatiotemporally located, and, moreover, they *do* have intrinsic properties—as I'll argue below.

That space-time regions and whole space-times have intrinsic properties is supported by the following observations (the second observation listed is the more telling).

First, in General Relativity, massive objects bring about changes to the geometry of space-time: that is, massive objects produce changes in the *geometrical properties* of space-time. (Space-time can vary in its 'curvature': it can have an elliptical geometry—the sort of geometry exhibited by the relations between points on a sphere; it can have a 'flat' or Euclidean geometry; it can have hyperbolic geometry—such as exhibited by the relations between points on a 'saddle' shape; and, in addition, there can be variations in curvature across space-time.) These properties are not themselves a matter of space-time points standing in relations to massive objects; rather they are properties of space-time itself—properties of space-time regions which plausibly supervene on relations between the space-time points which make up the space-time.

Secondly, taking General Relativity to describe at least some ways things

could be with regard to space-time, it is also notable that there are infinitely many 'vacuum' solutions to the equations of GR—solutions which don't involve there being matter. In these different solutions there are variations in the geometrical properties of space-time (the 'curvature' of the space-time involved) *in the complete absence of massive objects*. It seems, then, that space-time might differ in its properties without anything else existing which is concrete: the relevant properties are ones which whole space-times can have when they are 'lonely'. Interesting vacuum solutions include the Minkowski, de Sitter, and Anti de Sitter spacetimes (see e.g. Choquet-Bruhat 2009, 118–21).[2] Einstein himself saw the existence of the de Sitter solution as highly significant. Einstein was for a long time attached to 'Mach's principle'—the claim that all gravitational fields can be attributed to material sources—and as a result felt that '[i]t would be unsatisfactory … if a world without matter were possible … it should be the case that the $g_{\mu\nu}$-field is fully determined by matter and cannot exist without the latter' (Einstein 1917, quoted in Janssen 2014, 202), but, in the wake of his exchange with Willem de Sitter and Felix Klein, Einstein abandoned this view and admitted the de Sitter world as a genuine possibility— 'there … is a singularity-free solution to the gravitational equations without matter' (Einstein 1918, quoted in Janssen 2014, p. 207). Reflecting on this stage in the development of his views, Einstein later said

> one should no longer speak of Mach's principle at all. It dates back to the time in which one thought that the 'ponderable bodies' are the only physically real entities and that all elements of the theory which are not completely determined by them should be avoided. (I am well aware of the fact that I myself was long influenced by this *idée fixe*.) (Einstein to Felix Pirani, February 2, 1954; quoted in Janssen 2014, 207)

For there to be one matter-free solution to the equations of GR would be significant in itself: since the de Sitter space-time has curvature properties, its existence shows that space-times can have these characteristics while 'lonely', making the characteristics intrinsic. That there are *multiple* vacuum solutions, varying in curvature properties, presses the point.[3]

Worries might be raised here with regard to the role of the notion of an intrinsic property in the argument. The first worry concerns the difficulty

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[2] The Minkowski, de Sitter, and anti-de Sitter space-times differ in the values assigned to the cosmological constant, but even with a fixed value for the cosmological constant there are still infinitely many vacuum solutions by choice of Cauchy data obeying the constraint equations.

[3] Thanks to Chris Fewster for helpful explanations of the physics here, particularly in relation to vacuum solutions. For more detail on the significance of the de Sitter solution, see Janssen 2014, 167–70 and 198–208, esp. 207.

of providing an *analysis* of intrinsicality. Here it is worth noting what Efird and Stoneham say on the matter. They remark that, in the literature discussing how to analyse 'intrinsic', there is 'general agreement over which properties are intrinsic' and add that this 'should give us confidence that the concept of intrinsicality is in good order and that it can be put to philosophically useful purposes, even if we struggle to explicate it' (E&S 2005a, 311 n. 21). I agree with the thrust of this remark, but a second and related worry should be considered. It might be suggested that the claim that a whole space-time is a concrete item relies on a contentious case of alleged intrinsicality (curvature properties) and that it will, therefore, need to call on an analysis of intrinsicality for support.

The status of curvature properties as intrinsic can be defended without appeal to a full-dress *analysis* of intrinsicality. The key point is simple: curvature properties are analogous to clear cases of intrinsic properties in material objects, such as (rest) mass. One might add that the fact that they are properties that a space-time might have in circumstances in which there are no objects that are both wholly distinct from it and concrete can be taken as indicative of their status as intrinsic, given that they plausibly do not fall into any of the types which make trouble for attempted full-blown analyses of intrinsicality. (They are not trivially apt to be had by something lonely—as is the property of being lonely; nor are they disjunctive—as is *being a lonely cube or an accompanied non-cube*.)[4]

Against these observations it might be suggested that consideration of the way in which curvature properties are defined raises significant concerns about their status. Let us grant for the sake of argument that we are obliged to pick out curvature properties in terms of subjunctive conditionals, along the following lines:

> A space-time region *r* has curvature property C iff were a light signal to be generated *thus-and-so* in *r* then it would propagate *so-and-thus*

It might be suggested that this undermines the claim of intrinsicality, by making curvature somehow relational. But this line is not at all convincing. First, the claim about definition at worst makes curvature properties analogous to dispositional properties like being water-soluble; but being dispositional does not entail being relational. Water-solubility is an *intrinsic* property: on plausible understandings of dispositional properties, a thing might be water-soluble even though there were no

[4] Indeed, if being apt to be possessed in circumstances in which nothing distinct from the object exists is taken to be a mark of intrinsicality, the status of curvature properties as intrinsic is *more* secure than many intuitively intrinsic properties of material objects: the existence of vacuum solutions to the equations of General Relativity makes a strong case for the possession of curvature properties by lonely space-times, whereas support for the claim that it might be that Lincoln exist and have, say, mass *m* and nothing else (concrete) exist and yet Lincoln possess mass is far weaker.

water in existence. Secondly, it is plausible that dispositional properties have categorical bases—if, for example, item *b* is water-soluble, then it has some *categorical* property G in virtue of which it is such that, were it immersed in water, then it would dissolve. It might be suggested at this point that there is a significant distinction between the case of water-solubility and the case of curvature, because in the case of water-solubility the counterfactual has to be hedged (with 'under standard circumstances' or somesuch), indicating that there is a categorical property which 'has a life independent of the counterfactual'; whereas, in the case of curvature, no such hedging is required. But this suggestion would be mistaken: the pattern of propagation of light signals within a space-time region will be sensitive to a whole range of potentially interfering factors (e.g. the presence of dense transparent media).

6. Consequences of space-times being concrete

If space-times are concrete items, what consequences might follow for subtraction arguments?

It might be that the argument fails. It might be that (B) is intuitively compelling when the range of the quantifiers is restricted to exclude spatio-temporal regions and whole space-times, but fails to be compelling without this restriction. If this is how things turn out then we can perhaps subtract down to empty space-time but not get down to zero concrete items—though it would be a delicate question whether there were a viable version of the argument establishing that there can be empty space-time, or whether doubts over the truth of (B) given the sense of 'concrete' we have made out would undermine even that restricted conclusion.

Alternatively, it might be that space-times are subtractable (and that we can make an intuitive case for this). If this is how things turn out, we get additional interesting consequences from subtraction arguments. One consequence would be that there might have been no space-time. Some additional plausible premisses concerning space and time would then yield the conclusions that there could have been no space (at all) and that there could have been no time (at all)—that is, no space as an aspect of space-time and no space of any other form either, and likewise for time.

It might be thought that if whole space-times were to turn out to be concrete items (by the lights of our best shot at a rational reconstruction of the notion of concreteness) then that would undermine the intuitive case for (B). Surely we balk at the subtraction of space-time? This is a nice question, and one that we will return to below, but I suspect that resistance here is based on a residual conviction that space and time comprise an immutable background for existence, radically different

from the run of the material world—a conviction which is (a) independent of the intuitions which drive the subtraction argument and (b) undermined to at least some extent by the deliverances of empirical investigation (undermined, that is, by discoveries about the nature of space and time in the actual world). The revisions in our views brought about by Relativity should lead us to recognize that space-times are at least *less* different from things we intuitively class as concrete than seemed to be the case prior to Einstein, so that our conviction that concrete objects are subtractable should carry over to whole space-times, if our best shot at giving a general characterization of concreteness includes them.

In the remainder of the paper I will argue that the revised SA should lead us to conclude that there could have been nothing—really nothing: no concrete objects, and no space-time. I first address a challenge to the account of concreteness to which we have appealed up to this point. This challenge threatens the status of whole space-times as concrete items. I will then turn, in the final section, to consider a further challenge to our revised SA and defend the subtractability of space-times.

7. A problem for the subtraction argument, and a revised account of concreteness

Efird and Stoneham's subtraction argument faces a challenge which may impact on the status of whole space-times.

The initial characterization of concreteness leads to a problem for (A1)—the claim that there might be a world with a finite domain of 'concrete' objects. If space is continuous, then each extended concrete object will have infinitely many concrete proper parts. (This objection is raised by Gonzalo Rodriguez-Pereyra; see his 1997, 163.)

Efird and Stoneham respond to the challenge by proposing a revised account of what it is to be concrete (2005a, 314–15):

> An object *x* is concrete iff *x* is spatiotemporally located and *x* has intrinsic qualities and *x* has a natural boundary

This revised account seems to secure (A1). To see this, consider a block of gold sitting on a wooden shelf. This is an extended object. It is concrete. It (the block of gold) is ST located, has intrinsic properties, and it has a natural boundary (its boundary with the air around it and the wooden shelf that supports it). The items in the proper subregions of the region it occupies are not, however, concrete, by the revised account, because they lack (complete) natural boundaries. (For more on natural boundaries, see Sider 2001.)

It seems this revised account of concreteness would rule out whole space-

times as concrete items: both finite but unbounded space-times and infinite space-times also lack boundaries of any kind.

The revised account is, however, open to objection. Consider a finite but unbounded world which is entirely filled by uniform matter. Intuitively this matter comprises a single concrete item, but the revised account rules that this is not a concrete object. (This objection is raised in Cameron 2007, 275–6.) We can add further support to this objection by considering a case in which we consider first a world in which the matter *almost* fills the space-time. Here the revised account rules that there is a concrete object, but rules otherwise in the intuitively very similar case in which the matter does fill the space-time.

A related objection concerns the fields of modern physics. Fields are plausibly concrete things:[5] they are spatiotemporally located, they have intrinsic properties, and they are contingent (and they can produce effects in intuitively concrete things); and yet at least some fields do not have natural boundaries. Some fields do not come to an end; rather, they extend indefinitely and merely attenuate (the electric field surrounding a charge distribution of non-zero net charge extends to infinity, attenuating but never exactly zero, by Gauss's law, even if the charge density vanishes outside a bounded region; a similar situation arises with Einstein's field equations for the metric, under the standard assumption that this is to be a Lorentzian signature).[6]

Efird and Stoneham respond to Cameron's objection by amending the boundary condition as follows (Efird and Stoneham 2009a, 134):

> *x* is such that, if it has a boundary, it has a natural boundary

In order to avoid complications about parts of the total boundary of a thing, we might use the following formulation:

> *x* is such that it has no non-natural boundaries (or boundary-sections)

With this further revision of the account of concreteness, whole space-times are again counted as concrete.

Note, in addition, that space-time *regions* (in the sense of extended proper parts of space-time) are *not* counted as concrete: they have boundaries, but it seems that these are not natural boundaries. This has the consequence that a possibility comprising only an empty space-time

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[5] Efird and Stoneham endorse the view that fields are spatiotemporally located and have intrinsic properties. They say that 'the [initial account] classifies electric fields as concrete and that is correct' (Efird and Stoneham 2005, 311). In the associated footnote (n. 25) they endorse the view that a world containing only fields and no matter would contain something relevant to the question 'Why is there something rather than nothing?'

[6] Thanks to Chris Fewster for his helpful advice on the physics here.

contains only one concrete object—namely, the whole space-time.[7]

So, this revised version of the account of concreteness classes whole space-times as concrete items, and rules that non-maximal space-time regions are not concrete, so that a world containing one whole space-time and no material objects contains only one concrete item. We are returned to the situation noted above: either whole space-times are subtractable—and the subtraction argument commits us to the possibility of there being no space-time—or (B) fails when the range of its object quantifiers is taken to include whole space-times, and the subtraction argument fails as a consequence.

8. Subtraction, basic components, and space-times

Can anything be said to support the subtractability of whole space times?

In this section I will mount a limited defence of the subtractability of whole spacetimes by pursuing the following strategy. I will consider the nature of our intuitive acceptance of (A1) and (B) and show that the stories we could tell on which (A1) and (B) are plausibly true do not provide any basis for drawing a distinction between intuitively central cases of concrete objects (medium-sized dry goods) and whole spacetimes with regard to subtractability.

I want to consider what's going on when we judge that (A1) and (B) are plausible. How do these judgements relate to thinking which, as far as

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[7] In his 2007, Cameron argues that (B) is false if the no-non-natural-boundary account of concreteness is correct (see page 276)—or, at least, that if concreteness is understood in terms of the no-non-natural-boundary account, then the intuitive motivation for belief in (B) is undermined (see page 274). The argument involves a people—the Qube—who believe: (i) that there is an object with a natural boundary which is a god and which contains infinitely many further gods; (ii) that each god has an essential size, so that eroding the object destroys gods whose boundaries are encroached; and (iii) that, due to the powers of the gods, the object is proof against complete erosion. The Qube can share our intuition that the destruction of one object cannot magically entail the existence of another, but they deny (B) understood in terms of a no-non-natural-boundary account of concreteness: eroding the object will destroy a concrete (no-non-natural-boundary) thing, but result in some other thing coming to have a natural boundary and thereby coming to be concrete on the account given; and there's no way to grind away all of the object. Cameron claims that the views of this people do not involve the denial of any fundamental metaphysical intuition (see page 278). The argument is ingenious, but it fails. As E&S note (2009, 135), the Qube should admit, surely, that it could have been that none of the gods existed. And if they deny this, then their resistance is simply a matter of their peculiar theology, and their refusal to accept (B) is based on denial of a deep metaphysical intuition that we hold—namely, that it is not necessary that an object composed of gods of this strange kind exists. (One might further object that the 'contained' gods in Cameron's example *do* have natural boundaries: surely, a boundary which is such that encroaching upon it leads to the destruction of an object is natural. Note that mere containment inside a coating of some material of similar density does not prevent a boundary existing: e.g. a sphere of gold might be contained within a cube of platinum—see E&S 2005a, 314.)

possible, avoids commitment to particular metaphysical theories?

When we probe this issue we find something that may look somewhat dubious at first blush, *but*, when we get a clearer view of how the subtraction argument is supported by intuition we will see that *if* we are happy to endorse subtraction as it applies to paradigm concrete objects (dogs, planets, tables, etc.) then we should be happy to endorse the subtraction of whole space-times.

When we ask ourselves whether there might be finitely many concrete objects it is natural to think something like 'Well, there could be just three metal cubes'. That is, we base our judgement on thoughts about 'middle-sized dry goods'.

When it comes to subtraction, it is intuitively plausible that the sorts of things we think about in relation to the issue of finite domains might have failed to exist without their non-existence entailing the existence of something 'new' (something not in the 'starting domain'). But here we should recognize that these sorts of things can fail to exist in ways that do not require the non-existence of all their parts and stuff. A metal cube might fail to exist, though its parts and stuff exist, with those parts and that stuff scattered. Here it might be suggested that the mere intuition that one of those paradigm objects might not have existed does not ensure that the size of the domain of concrete objects could be reduced thereby.[8] This suggestion is, of course, in one way superficial: we can take parts of (paradigm) extended objects to figure in the counts of conceived finite domains of concrete objects. This will require that larger extended objects are made up from finitely many smaller parts with natural boundaries, but that seems to be possible: there are natural boundaries between bones, ligaments, muscles, and so on within human bodies, for instance. Reflection on this issue reveals, however, that thinking about finiteness of domain and subtractability depends on intuitions about how things might be at smaller scales—scales smaller than those at which we find paradigm extended concrete objects, scales at which our intuitions might seem less secure.

Now, one way to try to deal with concern about this 'drive to the very small/to the level of constitution' would be to say that we have an intuition which supports what might be called *parts-and-all subtraction* of medium-sized dry goods: that we have a basic intuition that any item of medium-sized dry goods *and all of its constituent parts and stuff* might have failed to exist without that entailing the existence of anything else. The problem with this, however, is that the required principle seems too

[8] It seems that there are ways that things might be at the small scale which would put a limit to subtraction, thus conceived. If mid-sized dry goods were disturbances in some fundamental fields, then 'removing' the mid-sized dry goods by stages while the fields remain in place would not be guaranteed to yield a situation in which there was nothing concrete. I'll return to this case shortly.

close to the desired conclusion, as Cameron points out (2007, 275): 'if we can get rid of any concrete object and thereby get rid of all its parts, then why not simply, in one step, get rid of that object which is the mereological sum of all the concrete objects?' It is worth saying that the argument is not rendered *straightforwardly* question-begging by the move—an additional premiss would be required, to the effect that there is a concrete object which is the mereological sum of all the (other) concrete objects, in order to take us to the conclusion—but it does seem to weaken the force of the argument all the same.

There is, however, an alternative response. Our conviction that there can be finitely many concrete things and our conviction that concrete things are subtractable are, I suggest, reliant on the thought that there are ways things could be at the smaller scale/with regard to the constitution of medium-sized dry goods which would allow for finite domains and subtractability. Let's look at the various different ways things might be with regard to the constitution of material objects and consider (a) whether they allow for a finite domain and subtractibility and (b) what the individual cases have to tell us—if anything—about the status of space-times and their subtractability. It is worth noting in advance, and bearing in mind throughout the discussion, that all that is needed for the success of the SA is that there is *one* way that things might be which would allow for a finite domain of subtractable items. This already has a high degree of plausibility, but let's consider the cases.

There seem to be four ways that things could be with regard to the constitution of middle-sized material objects that we should consider:[9]

(I) Everyday material objects are made up from finitely many point particles (extensionless atoms)

(II) Everyday material objects are made up from finitely many extended atoms

[9] It might be suggested that there is a tension between the approach adopted here and the approach found earlier in the paper. In arguing for the status of whole space-times as concrete objects appeal was made to what modern physics tells us about space and time, but now appeals are being made to possibilities which may not be consistent with that physics. Views similar to those found in Callendar 2011 and Ladyman and Ross 2007 might prompt someone to say that, though the earlier invocation of actual physics was laudable, this later wandering into areas that might not be consistent with the actual laws of physics is disreputable. The approaches adopted in this paper are, however, consistent. Physics was appealed to earlier to reveal the actual nature of space and time in a way that would lead some at least to *expand* their view of what is possible, but that is entirely consistent with appeals to possibilities which may lie beyond that region of logical space in which the actual laws of physics apply. Surely, in thinking about possibilities, our default position should be that 'something is possible until proven guilty'. If something is consistent with the laws of physics, that may give us a *stronger* reason to think it possible, but only considering worlds with our physics seems shortsighted. (It's worth noting, in addition, that possibility IV here may be one which is actually realized.) Thanks to an anonymous referee for this journal for pressing me to address this issue.

(III)Everyday material objects are made up from finitely many discrete portions of homogenous stuff (‘drops’ or ‘blobs’ of matter)

(IV)Everyday material objects are realized by fields

(I) It is at least somewhat plausible that constitution by finitely many point particles is possible. Cameron suggests that our intuitions concerning point particles being a genuine possibility are not very much more secure than our (pre-argument) intuition that there might be nothing (Cameron 2007, 274–5). This seems to be at least something of an overstatement, but let us grant that there is *some* room for doubt as to whether point particles are genuinely possible, so that we should not rely *entirely* on this option in attempting to ground our SA. (We will return to this point about relying on particular potential forms of material constitution shortly.) With regard to space-times, the issue of the subtractability of point particles does not seem to bear one way or the other on the issue of whether space-time regions or whole space-times are subtractable.

(II) It is plausible that constitution by extended atoms is possible. But similar (limited) doubts might be raised here as were raised under (I), so again we should not rest *all* of the weight of our argument on this option. With regard to the issue of space-times and space-time regions, it is worth noting that there are some key similarities between extended atoms and whole space-times, in the terms we’ve been considering: they are alike in being spatiotemporally extended, contingent, and homogenous. Given these similarities it is unclear what would be supposed to ground a distinction between the two in terms of subtractability.

(III) A further putative possibility to consider is that of portions of homeomerous stuff. A discrete portion of such stuff could be spatially extended and have a natural boundary. Such a portion differs from an atom in that it is not required that its existence be all-or-nothing: a proper part of a portion might exist without the whole portion existing. And yet it seems legitimate to subtract a whole portion. Why? Well, it seems that an additional plausible principle is in play here: necessarily, if there exist some quantities of stuffs which *exhaust* the quantities of stuff (in the sense that there is no quantity of stuff which is neither one of them nor comprised of sub-quantities of one or more of them) and there exists a quantity of some particular stuff, then it’s possible for that quantity of that particular stuff not to exist and every quantity of stuff that exists be one of those quantities or comprised by sub-quantities of one or more of those quantities. Briefly: quantities of uniform stuff are subtractable (in this extended sense). Again it would seem that the similarities between quantities of stuffs and space-times are such that it is not clear what would ground a distinction between the two in terms of subtractability—indeed, in this case it is natural to suppose that the similarities are such

that if one takes portions of stuff to be subtractable then one should conclude that space-times are subtractable also.

(IV) Constitution by a finite number of fields seems possible. (And, it seems, constitution by fields may be *actual*, which would seem to lend this option some additional weight.) At least some fields seem to be contingent items, so, in the absence of contrary argument, it would seem that constitution by a finite number of contingent fields seems possible. So it seems that there could be a finite domain of contingent material objects and fields. And again, it would seem that the similarities between fields and space-times are such that it is not clear what would ground a distinction between the two in terms of subtractability.

In summary, there seem to be four putative ways for things to be with regard to the constitution of material things which would allow for a finite domain and subtractability. In each case there is *some* room for doubt over whether it is genuinely possible for things to be that way—though in each case there is little ground for that doubt and the doubt is correspondingly weak. That there are four such ways is significant: as noted already, all that is needed for the success of the SA is that there is *one* way that things might be which would allow for a finite domain of subtractable items.

It is worth noting in addition, that in three of the four cases, similarities (or at least, a lack of disanalogies) between the characters of the constituting items and whole space-times suggest that we should not hold a differential attitude towards the subtractability of space-times in comparison to other concrete objects—and the remaining case seems to be neutral on this issue. If one believes that a world of material objects can comprise a finite domain of concrete things, then one should believe that whole space-times are subtractable.

9. Conclusion

We have seen that careful consideration of the account of concreteness developed by Efird and Stoneham strongly suggests that whole space-times should be classed as concrete items. Given this result we are faced with three main options: (i) reject Efird-Stoneham-style accounts of concreteness and search for an alternative account which rules whole space-times non-concrete; (ii) conclude that (B) is false, on the grounds that whole space-times are concrete but not subtractable; (iii) conclude that, even in the face of our observations about whole space-times, the subtraction argument remains intuitively plausible and, on that basis, we have reason to believe that there could have been no material objects *and no space-time either*. I have argued for (iii): space-time as we find it in actuality is a concrete object, it is contingent, and there is no obvious reason to think it any less subtractable than items of middle-sized dry

goods, so, at the very least, if one found the subtraction argument persuasive prior to the recognition of the status of whole space-times as concrete items, then one should continue to find the argument persuasive in the wake of such recognition. In short, the revised subtraction argument presented here should lead us to conclude that there could have been nothing, and 'less' nothing than we thought previously—not only no material objects, but no smaller-than-universe-sized concrete items of any type, and no whole space-times either.[10]

REFERENCES

Baldwin, T. 1996. There might be nothing. *Analysis* 56: 231–38.

Callender, C. 2011. Philosophy of science and metaphysics. In *The Continuum Companion to the Philosophy of Science*, ed. S. French and J. Saatsi, 33–54. London: Continuum.

Cameron, R. 2007. Subtractability and concreteness. *The Philosophical Quarterly* 57: 273–9.

Choquet-Bruhat, Y. 2009. *General Relativity and the Einstein Equations*. Oxford: Oxford University Press.

Efird, D. and T. Stoneham 2005a. The subtraction argument for metaphysical nihilism. *The Journal of Philosophy* 102: 303–25.

——2005b. Genuine modal realism and the empty world. *European Journal of Analytic Philosophy* 1: 21–37.

——2006. Combinatorialism and the possibility of nothing. *Australasian Journal of Philosophy* 84: 269–80.

——2009a. Justifying metaphysical nihilism. *The Philosophical Quarterly* 59: 132–7.

——2009b. Is metaphysical nihilism interesting? *Pacific Philosophical Quarterly* 90: 210–31.

Einstein, A. 1917. Letter (Einstein to de Sitter), March 24, 1917. *Collected Papers of Albert Einstein*, 8, document 317.

——1918. Letter (Einstein to Klein), June 20, 1918. *Collected Papers of Albert Einstein*, 8, document 567.

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Janssen, M. 2014. ‘No Success Like Failure … ’: Einstein’s quest for general relativity, 1907–1920’. In *The Cambridge Companion to Einstein*, ed. M. Janssen and C. Lehner, 167–227. Cambridge: Cambridge University Press.

Ladyman, J. and D. Ross 2007). *Every Thing Must Go: Metaphysics Naturalized*. Oxford: Oxford University Press.

Paseau, A. 2002. Why the subtraction argument does not add up. *Analysis* 62: 73–5.

Rodriguez-Pereyra, G. 1997. There might be nothing: the subtraction argument improved. *Analysis*, 57: 159–66.

Sider, T. 2001. Maximality and intrinsic properties. *Philosophy and Phenomenological Research* 63: 357–64.

Williamson, T. 2002. Necessary existents. In *Logic, Thought, and Language*, ed. O’Hear, 233–51. Cambridge: Cambridge University Press.

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RELATIVE MODALITY AND THE ABILITY TO DO OTHERWISE*

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ABSTRACT

It is widely held that for an action to be free it must be the case that the agent can do otherwise. Compatibilists and incompatibilists disagree over what this ability amounts to. Two recent articles offer novel perspectives on the debate by employing Angelika Kratzer's semantics of 'can'. Alex Grzankowski proposes that Kratzer's semantics favour incompatibilism because they make valid a version of the Consequence Argument. Christian List argues that Kratzer's semantics favour a novel form of compatibilism. I argue that List's compatibilist application of Kratzer's semantics faces problems not faced by Grzankowski's incompatibilist employment of them. On the other hand I argue that Kratzer's semantics make Grzankowski's version of the Consequence Argument valid only at the cost of rendering it dialectically useless. Contrary to both views Kratzer's semantics do not appear to add substantial weight to either side of the compatibilism/incompatibilism dispute.

Keywords: *free will, determinism, compatibilism, consequence argument*

1.Introduction

It is widely held that in order for an action to be free, it must be the case that the agent can do otherwise.[1] A major dispute between compatibilists and incompatibilists concerns what this ability amounts to. Compatibilists offer various interpretations of 'can' on which the agent's ability to do

[1] For an influential argument against this principle not discussed here see Frankfurt (1969).

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otherwise is compatible with determinism. Incompatibilists typically argue that these interpretations are implausible and that intuitively an agent's ability to do otherwise is not compatible with determinism.

Two recent articles offer novel perspectives on this debate by employing Angelika Kratzer's semantics of 'can'. Alex Grzankowski proposes that Kratzer's semantics are favourable to *incompatibilism* because on a natural application they make valid a version of the Consequence Argument for the incompatibility of determinism and the ability to do otherwise. Christian List on the other hand argues that Kratzer's semantics make natural a novel form of *compatibilism*.

Section I, introduces Grzankowski's and List's positions. Section II argues that List's employment of Kratzer's semantics faces problems not faced by Grzankowski's. Section III argues that on the other hand Kratzer's semantics make valid Grzankowski's version of the Consequence Argument only at the cost of rendering it dialectically useless. Contrary to both views Kratzer's semantics do not appear to add substantial weight to either side of the compatibilism-incompatibilism dispute.

Section I

In this section I introduce the new perspectives on the compatibilist/ incompatibilist dispute offered by Grzankowski and List by employing Kratzer's semantics of 'can'. Grzankowski's discussion focusses on a version of the Consequence Argument.[2] The argument is supposed to show that determinism is incompatible with the ability to do otherwise. Suppose that at $t1$ Jones puts his hand down on a desk. Let L denote the laws of nature and P the conjunction of propositions describing some past time ($t0$) before any humans were born. The argument proceeds:

1. No one at $t1$ can change the past (i.e. make it the case that P is false).
2. No one at $t1$ can change the laws (i.e. make it the case that L is false).
3. One's present actions are the necessary consequences of P and L (i.e. determinism is true).
4. No one at $t1$ can change the fact that her present actions are the necessary consequences of P and L.
5. One cannot at $t1$ change the fact that her present actions occur at $t1$ (e.g. Jones cannot raise his hand at $t1$).

This is the Consequence Argument as Grzankowski presents it. I understand premiss 3 to say that every possible world that shares the

[2] Grzankowski (2014, 174) adapts this version from Kane (2005).

actual past at *t*0 (where P obtains) and the actual laws of nature (where L obtains) also shares one's actual present actions. This looks like an uncontroversial correlate of determinism. Premisses 1, 2, and 4 are at least very plausible. Where these premisses are accepted it is supposed to follow that Jones cannot act otherwise than he does at *t*1.[3]

Although the Consequence Argument is attractive, there exist compatibilist-friendly readings of 'can' on which it is invalid. A classic compatibilist move analyses 'can' as a conditional such that 'A can φ' is true if and only if had A wanted or tried to φ, A would have φ'ed. (E.g. Hume 1978, 73; Ayer 1954; Hobart 1934.) On this reading the compatibilist can grant the premisses of the argument whilst denying the conclusion.[4]

Incompatibilists are typically unpersuaded by the conditional analysis of 'can', as well as more recent compatibilist-friendly analyses.[5] But they do not typically specify an alternative. It is here, Grzankowski suggests, that Kratzer's semantics can provide a new perspective, favourable to incompatibilism:

> At some point, incompatibilists must offer an acceptable positive account of 'can' that allows for a valid statement of the argument. Fortunately linguists and philosophers of language have on hand a very plausible proposal… Indeed, it is surprising that the proposal has not been carefully considered in this context. Interestingly, the news is, I believe, good for incompatibilists, (Grzankowski 2014, 179)

According to Kratzer the terms 'can' and 'must' always have an additional argument of the form 'in view of X', sometimes explicitly stated, sometimes not.[6] Consider for example the sentence:

> [A] 'The ancestors of the Maori must have arrived from Tahiti.'

Following Kratzer [A] might usefully be paraphrased:

> [A*] 'In view of what is known, the ancestors of the Maori must have arrived from Tahiti.'

For an example with 'can' consider:

> [B] 'You can open by moving your knight.'

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[3] The argument also depends on a controversial suppressed premiss 'rule β', discussed in section III. Cf. Johnson and McKay (1996) and Van Inwagen (2000).

[4] For detail see (Grzankowski 2014, 177-8).

[5] E.g. the 'New Dispositionalism' of Fara (2008) Smith (2003) and Vihvelin (2004) critically discussed by Clarke (2009) and Whittle (2010).

[6] My exposition follows Grzankowski (2014, 180-2). For some refinements see Kratzer (1977).

This might be paraphrased:

> [B*] 'In view of the rules of chess, you can open by moving your knight.'

Unparaphrased there seems to be a distinct deontic 'can' and 'must', an epistemic 'can' and 'must', a 'can' and 'must' of legal chess moves and so forth. But when paraphrased as above it is possible to treat these terms univocally as quantifiers over worlds restricted by the 'in view of' clause. For example, [A*] restricts our attention to the set of worlds in which everything that is known about the actual world obtains. [A*] is true if and only if all the worlds in this set are ones where the ancestors of the Maori arrived from Tahiti. [B*] restricts our attention to the set of worlds in which the rules of chess are obeyed. [B*] is true if and only if there is *some* world in that set where you open by moving your knight. So on Kratzer's semantics:

> **CAN:** 'S can φ' is true *iff* there exists a world in the restricted set in which S φ'es.

Grzankowski argues that by employing Kratzer's semantics the incompatibilist can show that the Consequence Argument is valid. To do so it is necessary to decide what restricted set of worlds 'can' introduces in the premisses and conclusion. Plausibly, Grzankowski suggests, this should be the same set of worlds throughout. For otherwise something like a fallacy of equivocation will result (cf. Grzankowski 2014, 182, fn. 23). It should also be a set that captures the intuitive truth of the premisses. Grzankowski proposes:

> Incompatibilists can offer a straightforward way, in the present dialectic, of making the premises true—simply focus on the worlds in which the laws are as they actually are and the past is as it actually is. (Grzankowski 2014, 183)

Where *W* denotes that set the argument can be represented as follows:

> K1. In view of *W*, one cannot change the past.
>
> K2. In view of *W*, one cannot change the laws of nature.
>
> K3. Our present actions are the necessary consequences of the past and the laws of nature.
>
> K4. In view of W, one cannot change the fact that our present actions are the necessary consequences of the past and the laws of nature.
>
> K5. In view of W, one cannot change the fact that one's present actions occur (say, that Jones raises his hand at *t*1).

Understood in this way the argument appears to be valid. As Grzankowski says:

> In actuality, Jones puts his hand on the desk. Take the set *W*, recalling that those worlds are worlds in which the laws are as they are in the actual world and the past is as it is in the actual world. If determinism is true, are any of those worlds ones in which Jones now raises his hand…? No, for the worlds under consideration are deterministic worlds that have the same laws and the same past as the actual world. (Grzankowski 2014, 184)

According to Grzankowski, Kratzer's semantics are therefore favourable to incompatibilism. For they offer an independently plausible reading of 'can' that makes valid this version of the Consequence Argument.

If Grzankowski's were the only thinkable way of employing Kratzer's semantics in this context, then they certainly would favour incompatibilism. In another recent article however, Christian List has defended a novel version of compatibilism that also appeals to Kratzer's semantics. To this I now turn.

List's strategy is to draw a distinction between our understanding of things at the *physical level* and our understanding at the *level of agents*.[7] He proposes:

> When we are interested in whether a particular action is possible for an agent … the appropriate frame of reference is not the one given by fundamental physics, but rather the one given by our best theory of human agency. (List 2014, 161)

List introduces the following model (List 2014, 162-5). Let all physically possible states of the world be denoted by *S*; all points in time by *T*. A *world history* is a temporal path through *S*, represented by a function *h* that assigns to each time, *t* in *T*, a state $h(t)$ in *S*. Ω denotes the set of world histories that are possible according to the actual laws of physics. Propositions can be defined as subsets of world histories in Ω. A proposition *p* is true in exactly those world histories that it contains. The truncated part of a history *h* up to a time *t* is denoted h_t. Determinism is then defined as follows:

> **Determinism:** For any two histories *h*, *h'* in Ω and any point in time *t* in *T*, if $h_t = h'_t$, then $h = h'$.

List defines an accessibility relation *R* between histories:

> **Accessibility:** For any histories *h*, *h'* in Ω and any point in time *t* in *T*, hR_th' if and only if $h'_t = h_t$.

That is, two histories stand in the accessibility relation at a certain time, if and only if they share their pasts up to that time. Possibility can then be defined as follows:

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[7] In this respect List's theory resembles that of (Kenny 1975).

> 'It is possible that *p*' is true in history *h* at time *t* if and only if *p* is true in some history *h*' that is accessible from *h* at time *t*.

List's model has the consequence that if determinism obtains then for any history *h* and time *t* there is no proposition *p* such that '*p* is possibly true' and '*p* is possibly false' are both true in *h* at *t*.

List introduces an equivalent set of apparatus for the agential level. An 'agential state' is the state of an agent and her macroscopic environment as specified by our best theory of human agency. **S** denotes the set of all possible agential states so specified. States in **S** supervene on those in S:

> There exists a (many-to-one) mapping σ from *S* into **S** such that each physical state *s* in *S* determines a corresponding agential state σ(*s*) in **S**, but the same agential state **s** in **S** may be realized by more than one physical state *s* in *S*. (List 2014, 164)

List adds that for any physical history *h* there is a corresponding agential history **h**, where **h** is some function from the set of time points *T* into the agential state space **S**. The agential state **h**(*t*) is determined by applying the mapping σ to the physical state *h*(*t*). So for any physical history *h* in Ω, the corresponding agential history is σ(*h*) = **h**. List uses **Ω** to denote 'the set of all possible agential histories thus determined'. (List 2014, 165) (It will be important in what follows that the agential histories in **Ω** are exactly those that supervene on physically possible physical histories.) It is then possible to define the agential accessibility relation **R***t*:

> **Agential accessibility:** For any histories **h**, **h'** in **Ω** and any point in time *t* in *T*, **hR**$_t$**h**' if and only if **h**$_t$ = **h**'$_t$.

That is, two histories stand in the *agential* accessibility relation at a certain time, if and only if they share their pasts *as described by our best theory of human agency* up to that time.[8] Finally List states the following truth conditions for agential possibility where a proposition **p** is defined as a subset of **Ω**:

> It is (agentially) possible that **p**' is true in history **h** at time *t* if and

[8] Agentially accessible histories will be those that contain the future actions that an agent is able to perform. In this respect List's notion of agential accessibility resembles that employed by Lehrer (1976, 253–254) and others. Lehrer also understands what an agent can do in terms of a restricted set of possible worlds, and like List he argues that the relevant set of worlds can include physically impossible actions. For Lehrer this is because the physical possibility of a future action does not count as an 'advantage' to those who would perform it. I do not think Lehrer's arguments would convince an incompatibilist, but to show this would require a separate discussion. I am grateful to an anonymous reviewer for the EuJAP for pointing out the parallels between Lehrer's position and those discussed here.

> only if **p** is true in some history **h**' that is agentially accessible from **h** at time *t*. (List 2014, 165)

With this system in place List observes:

> While any physical history (in Ω) may have only one possible continuation at any time, namely the history itself, there can be two or more distinct agential histories (in **Ω**) that coincide up to time *t* but then branch out in different directions.

Therefore, on List's model the agential possibility to do otherwise appears to be compatible with physical determinism.

Of course, this does not mean that, agential possibility as defined by List's model, on a reasonable interpretation, captures what we are interested in when we say that the ability to do otherwise is a necessary condition for free will. List argues, however, that if we adopt Kratzer's semantics of 'can' this is very plausible.[9]

Recall that on Kratzer's semantics 'can' signifies possibility relative to something or other that is 'in view'. List proposes that when we are interested in an agent's ability to do otherwise the situation that is naturally 'in view' is not that described by physics but that described by our best theory of agency—a theory he imagines to resemble advanced psychological decision theory and improved extensions of folk psychology (List 2014, 168). He considers the example:

> 'Brutus could have chosen not to murder Caesar.'

The normal interpretation of this, List claims, is not:

> 'Brutus could have chosen not to murder Caesar in view of the full physical history of the world up to the act in question.'

But rather:

> 'Brutus could have chosen not to murder Caesar in view of his capacities as an agent.'

As List notes, Kratzer herself appears to be in agreement. Having introduced her semantics, Kratzer recalls hearing a philosopher claim that it makes no sense for a judge to ask himself whether a murderer 'could have acted otherwise'. For *obviously* given the whole situation of the crime (plus determinism) the murderer could not have acted otherwise. According to Kratzer:

> [The philosopher] misunderstood the judge: what the judge probably meant was: Given such and such aspects of the situation,

[9] List (2014, 167-9) offers a further 'top down' argument for attributing to agents the ability to do otherwise. Since my interest is whether Kratzer's semantics support List's version of compatibilism I pass over this argument here.

> could the murderer have acted otherwise than he eventually did? (Kratzer 1977, 343)

Grzankowski advised that in the context of the ability to do otherwise, the restricted set of worlds introduced by 'can' is that in which the actual past and the actual laws of nature are fixed. According to List the relevant set is, on the contrary, that where 'our best agential description of the situation' is fixed. If List is correct, the ability to do otherwise looks compatible with determinism after all. In the next section I raise some concerns for List's position.

Section II

The first thing we should note is that Kratzer's semantics, even in the context of the Consequence Argument, seem to be neutral as regards compatibilist versus incompatibilist readings of 'can'. In support of his reading Grzankowski says:

> In that dialectic, the premises give one the sense that the focus is on scenarios in which the past and laws are as they actually are. (Grzankowski 2014, 186)

But on the contrary we can easily find a reading that adopts Kratzer's semantics on which those premisses indicate no such thing. Suppose for example that we are committed to the classical view that '*A* can φ' is true if and only had *A* wanted to φ, *A* would have φ'ed. In that case we might adopt Kratzer's semantics, but insist that in this context the supressed 'in view of' clause introduces the restricted set *W'* containing precisely the nearest world or worlds where *A* wants to φ. On such a reading the Consequence Argument is again invalid.

So it seems that the premisses of the Consequence Argument indicate that we are focussed on scenarios in which the past and the laws are as they actually are only if we *presuppose* Grzankowski's choice of *W* as the restricted set of worlds introduced by 'can'. But as Grzankowski himself foresees, this choice is just what the compatibilist is likely to dispute (see, Grzankowski 2014, 187-9). And so Kratzer's semantics do not seem of themselves to favour an incompatibilist-friendly reading of the argument.

Of course, the conditional analysis of 'can' is widely regarded as failing to capture the sense of 'can' relevant to the ability to do otherwise. The question addressed in this section is whether List's proposal gives the compatibilist a plausible alternative. I argue that it does not.

Stated informally List's position looks attractive. It is surely true that we usually have in mind matters closer to decision theory and folk psychology than to fundamental physics when considering whether an agent could act otherwise. There is therefore some initial plausibility to the thesis that it is the situation described at this level that we naturally have 'in view' in this context. But when we try to be precise about the

alternative restricted set recommended by List's theory, the apparent naturalness of his position is substantially compromised.

On List's model a proposition **p** is agentially possible at a time *t* in a history **h** if and only if **p** is true in some history **h**' that is agentially accessible to **h** at *t*. The history **h**' is agentially accessible to **h** at *t* if and only if $\mathbf{h}_t = \mathbf{h}'_t$. So the restricted set recommended by List's theory will contain only worlds whose histories according to our best agential description coincide with that of the actual world up to the time in question. Further, an agential world history **h** is defined as a function from the points in time *T* into the agential state-space **S**. And so since **S** contains only states specified by our best theory of human agency the restricted set recommended by List's theory will also be one whose members involve no states ruled out by our best theory of agency. This set of worlds can be defined as follows:

> **[*W*"]** A world *w* belongs to the restricted set *W*" if and only if *w* shares its agent-level past with the actual world, and *w* contains no states that are ruled out by our best theory of agency.

Suppose we grant that *W*" contains no worlds where one changes the past, or the laws of nature, or the fact that one's present actions are jointly necessitated by these. Given determinism the premisses of the Consequence Argument would then be true. But *W*" might nonetheless contain worlds where one's present actions are other than they actually are. For some members of *W*" whilst sharing their agent-level past with the actual world may differ in their physical-level past, agential histories being multiply realisable. In those worlds one's present actions might also differ. Therefore where 'can' is read as introducing the restricted set *W*" the Consequence Argument is invalid.

But *W*" is not a plausible alternative to *W*. To see this, suppose we ask: can Jones, at *t*, build a perpetual motion machine? Now it seems at least intuitive that our best agential theory does not rule this out. Folk psychology and rational choice theory are, one supposes, silent on such matters. It is hard to imagine how any advance in them would change this. Surely we would not have to revise our theories of agency if it were discovered that such machines are physically possible after all.

So intuitively, *W*" *does* contain worlds in which Jones builds a perpetual motion machine. But of course, it is highly implausible that in the sense of 'can' relevant to the ability to do otherwise, Jones can build such a machine. After all we would not hold him morally responsible for failing to do so, and the natural rationale for this is that it was not possible. *W*" then looks problematic. As List himself says, "by admitting possibilities ruled out by our scientific understanding of the world… the claim that the agent can do certain things loses its bite" (List 2014, 160).

How might List reply to this? The obvious move appeals to the fact that when List defines agential possibility, he does so for a proposition **p** that is itself defined as a subset of **Ω**. **Ω**, recall, is the set of all agential histories determined by applying the mapping σ to members of Ω. And Ω denotes the set of physical world histories that are possible according to the laws of physics. This is supposed to model the supervenience relation between the agential level and the physical level. Now of course, there is no *physically possible* history in which Jones builds a perpetual motion machine. As such there are no members of **Ω** in which Jones builds such a machine. So presumably on List's model the proposition 'Jones builds a perpetual motion machine' corresponds to the empty set. And if so the same applies to *any* agent-level proposition whose supervenience base is ruled out by the laws of physics. If we take into account these features of List's model it looks like the restricted set that it recommends is not *W"* after all, but something like:

> **[*W"'*]** A world *w* belongs to *W"'* if and only if *w* shares its agent-level past with the actual world; *w* contains no states that are ruled out by our best theory of agency; and *w* involves no breach of the actual laws of physics.

Where the restricted set introduced by 'can' is *W"'* it is no longer true that Jones can build a perpetual motion machine. For *W"'* contains no world in which he does so. But the move from *W"* to *W"'* ought to worry us. For the restricted set introduced by 'can' according to List is supposed to be that determined by our best agential description of the situation—the situation as described by some advanced version of decision theory or folk psychology. But surely *W"'* goes significantly beyond this. For *W"'* also rules out *every* physically impossible world. It would be surprising if even a very advanced theory of agency were up to this. With *W"'* the sense that we are deploying 'can' at a purely agential level begins to erode.

Neither is *W"'* otherwise unproblematic. For whilst perpetual motion machines have been avoided we can imagine a similar problem arising. To see this suppose that physical level states include, amongst others, *J*-events and *K*-events. It is a physical law or a consequence thereof that *J*-events never occur later than *K*-events. Using List's model we might say that for any history *h* in the set of physically possible histories *Ω*, and for any time *t*, if the state *h*(*t*) involves a *K*-event then for any time *t1* later than *t*, the state *h*(*t1*) involves no *J*-event. Suppose further that some action supervenes necessarily on *J*-events, perhaps for example, building a *J*-machine. Suppose finally that some person, Jones, wants to build a *J*-machine at some time *t*, but that at an earlier time *t-1* a *K*-event has occurred. Can Jones build a *J*-machine at *t*?

Where the restricted set introduced by 'can' is *W'''* the answer seems to be 'yes'. Unlike perpetual motion *J*-events are not physically impossible. So worlds in which the proposition 'Jones builds a *J*-machine at *t*' is true need not breach the laws of physics. And since *K*-events are physical states, there is no reason why some worlds in which 'Jones builds a *J*-machine at *t*' is true should not share their agent-level past with the actual world. Neither is there any reason to suppose that 'Jones builds a *J*-machine at *t*' involves states ruled out by our best theory of agency. If this is right it seems that there will be members of *W'''* where Jones builds a *J*-machine at *t*.

But the conclusion that Jones can build a *J*-machine at *t* in the scenario described is surely wrong. For the earlier *K*-event will make any effort to do so futile. And note that the judgement that Jones cannot build the *J*-machine at *t* is something that incompatibilists and classical compatibilists *agree on*. For on the conditional analysis of 'can' 'Jones can build a *J*-machine at *t*' is true only if in the nearest worlds where Jones wants to build a *J*-machine at *t* he does so. But in the example Jones *actually* wants to build a *J*-machine at *t*. And so it follows *ex hypothesi* that in the nearest possible world where Jones wants to build a *J*-machine at *t* he *does not do so*. Where *W''* is replaced by *W'''* the restricted set recommended by List's model remains objectionable.

Might we avoid this problem by refining the restricted set further? It is not clear that we can. The obvious move would be to try to incorporate the virtues of the conditional analysis into List's model. It might be hoped that in doing so we will get the best of both (restricted sets of) worlds. But this too seems problematic. Suppose we say that for any action φ, the 'can' in '*A* can φ' introduces the restricted set:

> **[*W''''*]** A world *w* belongs to *W''''* if and only if *w* shares its agent-level past with the actual world; *w* contains no states that are ruled out by our best theory of agency; *w* involves no breach of the actual laws of physics; and *w* is one of the nearest possible worlds where *A* wants to φ.

W'''' avoids giving Jones the ability to build either perpetual motion machines or *J*-machines after *K*-events. And it is difficult to come up with further problem cases of that kind. But *W''''* faces a different difficulty, at least in the context of List's discussion. For if we ask why it is that *W''''* contains no worlds where Jones builds a *J*-machine at *t*, the answer appears to be because worlds in which he does so are 'less near' to the actual world than those in which he does not. And what makes them less near is precisely that no *K*-event has occurred in them prior to *t*.

But since *K*-events are physical events, that is a difference at the physical level only. So it is not clear how *W*”” could be the restricted set specified by our ‘best agential description of the situation’ when our agential descriptions are not supposed to be able to take account of differences at the physical level only.

And even if this is possible, it seems to me necessary to acknowledge that if *W*” compromised the initial naturalness of List’s position then *W*”” does so even more. It seems both surprising and highly unprincipled that physical possibility should determine agential possibility to such a high degree as it does on *W*”” whilst becoming conveniently irrelevant just when, as a compatibilist, one would like to be able to speak of alternative possibilities. On one occasion van Inwagen dismisses the conditional analysis as follows:

> I will say only this—and this is nothing new. The compatibilist's "move" is contrived and *ad hoc*; it is "engineered" to achieve the compatibility of free will and determinism. (van Inwagen 2000, 10)

If this worry is to be taken seriously with respect to the conditional analysis it is even more pressing with respect to an employment of Kratzer’s semantics engineered to yield *W*””.

Section III

Kratzer’s semantics applied to the premisses of the Consequence Argument need not yield a reading on which the restricted set is Grzankowski’s recommendation, *W*. But a consideration of the alternatives recommended by List’s employment of Kratzer’s semantics runs into serious difficulties. Such difficulties result where agential possibility extends beyond physical possibility. This gives us some reason to prefer Grzankowski’s recommendation of *W*, on which no such divergences can occur.

Of course this does not mean that some further refinement of List’s position will not avoid these difficulties, or that there is not some distinct compatibilist-friendly employment of Kratzer’s semantics that I have left untried. Within the limited purview of the present discussion however Grzankowski’s position seems to come out on top.

In this final section I should like briefly to qualify this judgement by noting one respect in which the conclusions Grzankowski draws overstate the favourability of Kratzer’s semantics to the incompatibilist. I have in mind the claim that, even if the compatibilist does produce a plausible alternative restricted set to *W*, the incompatibilist has made progress, since:

> 'Incompatibilists needn't simply wait for the next conditional analysis or merely rely on the intuitive force of the argument as given in plain English. Rather, they have a positive semantics and a plausible restricted set of worlds that validates their argument.' (Grzankowski 2014, 12)

It seems to me that on the contrary this progress comes at the significant price of rendering Grzankowski's version of the Consequence Argument dialectically useless. My reasons for thinking so are as follows.

I take it that an argument for a thesis is dialectically useful only if it has the potential to persuade someone who does not already accept that thesis of its truth. For Grzankowski's version of the Consequence Argument the hope is to show that if one cannot change the past or the laws, then given determinism (the fact that one's present actions are the necessary consequence of the past and the laws) one cannot change one's present actions either. This move relies on the controversial 'rule β': if there is nothing we can now do to change X, and Y is a necessary consequence of X, then there is nothing we can now do to change Y.

If our interlocutor insists that the restricted set introduced by 'can' in this context is W', W'''' or some other compatibilist-friendly set, she will judge the argument invalid. For although these restricted sets contain no worlds where one changes the past or the laws, they do contain worlds where one's present actions differ from what they actually are. That is, if the relevant set is W', W'''' or similar, rule β is false. And the Consequence Argument itself cannot be expected to persuade an interlocutor who thinks it invalid that she has erred in judging W', W'''' or similar to be the relevant restricted set. If this is correct the argument appears to have no potential to persuade such an interlocutor of its conclusion.

Of course as Grzankowski points out, where the restricted set is *W* the Consequence Argument is valid. But if our interlocutor accepts that *W* is the relevant restricted set, the argument is also superfluous. For even a compatibilist will readily accept that if we restrict our attention to worlds that share the actual past and the actual laws, then given determinism, those worlds must share our present actions as well. So where *W* has already been agreed upon as the restricted set introduced by 'can' in the phrase 'can do otherwise', the need for rule β and for premisses concerning our inability to change the past or the laws—in short the Consequence Argument—is obviated.

It is therefore difficult to imagine what kind of interlocutor the Consequence Argument, as interpreted by Grzankowski, could persuade. Until we get her to accept that *W* is the relevant restricted set she can reject the Consequence Argument as invalid. If she *does* accept that *W* is the relevant restricted set, the Consequence Argument ought to be

redundant.[10] And so it looks like Kratzer's semantics render the Consequence Argument dialectically useless. It would seem strange to consider *this* result favourable to incompatibilism. Perhaps it does point the way ahead for the compatibilist/incompatibilist dispute however. If we accept Kratzer's semantics, we must turn our attention away from the venerable Consequence Argument, and seek new arguments that speak for or against candidate sets of possible worlds, such as those put forward in section 2.[11]

REFERENCES

Clarke, R. 2009. Dispositions, abilities to act, and free will: The new dispositionalism. *Mind* 118.470: 323–351.

Fara, M. 2008. Masked Abilities and Compatibilism. *Mind*, 117.468: 843–865.

Fischer M. and G. Pendergraft 2013. Does the Consequence Argument Beg the Question? Philosophical Studies 166: 575-595.

Frankfurt, H. 1969. Alternate Possibilities and Moral Responsibility. *Journal of Philosophy* 66: 829–839.

Grzankowski, A. 2014. Can and the Consequence Argument. *Ratio* 27.2: 173-189.

Hobart, R. E. 1934. Free Will as Involving Determination and Inconceivable With-out It. Mind 43: 1–27.

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[10] The argument is sound only according to a reading of 'can' that would yield its conclusion directly. It is natural to understand this as a form of question-begging. In their discussion of the Consequence Argument Fischer and Pendergraft (2013, 593) offer a stronger criterion on which an argument is question-begging only if it contains a premiss that its proponent has no reason to accept apart from a prior acceptance of the conclusion. I do not claim that the Consequence Argument is question-begging in this sense. For, where the requisite reading of 'can' is treated as a supressed premiss, there may well be reasons for accepting it other than a prior acceptance of incompatibilism. Indeed, the argument of section 2 above provides modest grounds for doing so. My claim is only that once the supressed premiss has been accepted, the conclusion of the Consequence Argument follows immediately, without need for the argument itself. It is this that makes the Consequence Argument dialectically useless. Again I owe thanks to an anonymous reviewer for the EuJAP for pointing out the relevance of Fischer and Pendergraft's discussion here.

[11] I am very grateful to John Hyman, Christian List and Alex Grzankowski and two reviewers for the EuJAP for their helpful comments on this paper.

Hume, D. 1978. *An Enquiry Concerning Human Understanding*. Ed. Peter Nidditch. Oxford: Clarendon Press.

Johnson, D. and T. McKay 1996. A Reconsideration of an Argument Against Compatibilism. *Philosophical Topics* 24.2: 113-122.

Kane, R. 2005. *A Contemporary Introduction to Free Will*. New York: Oxford University Press.

Kenny, A. 1975. *Will, Freedom and Power*. Oxford: Blackwell.

Kratzer, A. 1977. What "Must" and "Can" Must and Can Mean. *Linguistics and Philosophy* 1.3: 337–355.

Lehrer, K 1976. 'Can' in Theory and Practice: A Possible Worlds Analysis. In *Action Theory*, ed. M. Brand, 241-70. Dordrecht: Reidel.

List, C. 2014. Free Will, Determinism, and the Possibility of Doing Otherwise. *Noûs*, 48.1: 158-178.

Smith, M. 2003. Rational Capacities, or: How to Distinguish Recklessness, Weakness, and Compulsion. In *Weakness of Will and Practical Irrationality*, ed. S. Stroud and C. Tappolet, 17–38. Oxford: Clarendon Press.

Van Inwagen, P. 2000. Free Will Remains a Mystery. *Noûs*, 34 Supplement *Philosophical Perspectives* 14: 1-19.

Vihvelin, K. 2004. Free will demystified: A dispositional account. *Philosophical Topics* 32: 427–450.

Whittle, A. 2010. Dispositional Abilities. *Philosophers' Imprint* 10.12: 1-23.

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ONE SECOND PER SECOND MULTIPLIED BY ONE SECOND*

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ABSTRACT

Detractors of temporal passage often argue that it is meaningless to say that time passes or flows, else time would have to pass at a rate of one second per second, which is in fact not a rate but a number, namely one. Several attempts have been recently made to avoid this conclusion, by retorting that one second per second is in fact not identical to one. This paper shows that this kind of reply is not satisfactory, because it demands a substantive revision of the algebraic behaviour of quantities.

Keywords: *time, flow, rate, speed, quantity*

1.Introduction

Transiency is an undeniable feature of human experience. This fact has led philosophically unprejudiced speakers to coin expressions, such as 'Time flows', 'Time flies', or 'Time passes', which may suggest that time literally and objectively displays a dynamical or flux-like behaviour. Philosophers, however, have long since looked with suspicion at similar figures of speech. To some, these are merely pictorial representations of the way our psychological and physiological constitution affects our subjective experience of temporality; to others, instead, they are rather metaphors of the objectivity of change and becoming.[1] Thinkers from both sides have consequently devised a full battery of arguments to the purpose of establishing once and for all that time does not, nor possibly

[1] Let us observe that, in consequence, not anyone who denies that time literally flows or passes should, for that reason, also deny the objectivity of becoming. Prior (1968) and Tallant (2010), for instance, explicitly declare that the flow of time is only a metaphor, even though they defend the ontological primacy of the present. Similarly, Zeilicovici (1989) proposes a declaredly non-dynamic model of temporal becoming.

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could, pass or flow in the literal sense.

The most famous and largely debated argument of this kind is what we may label the *no-rate argument* (Smart 1949, 1954; Price 1996, 2011; Olson 2009; van Inwagen 2009). For short, it can be put as follows:

(1) Everything that flows must flow at some rate or other.

(2) The rate of the flow of time, if any, must be one second per second.

(3) One second per second is identical to one.

(4) One is a number.

(5) Numbers are not rates of flow.

Premises (2)-(5) jointly imply that there is nothing like the rate of the flow of time; thereby, in accordance with (1), it follows that time does not flow.[2]

Those who have traditionally attempted to resist the conclusion of the no-rate argument have typically challenged premises (1) or (2), arguing that time might flow at some meaningful rate of passage other than one second per second (Webb 1960; Zwart 1972, 1976; Schlesinger 1969, 1982; Markosian 1993), or at no meaningful rate at all (Zwart 1972, 1976; Markosian 1993; see also Mazzola 2014). Some of the most recent attacks on the no-rate argument, however, have departed from this tradition, challenging instead premise (3). This new critical trend, initiated by Maudlin (2002, 2007) contends that (a) one second per second is neither identical nor reducible to one, and that (b) accordingly, it is a genuine rate of passage. Premises (2)-(5) consequently fall short of demonstrating that there is nothing like the rate of the flow of time (Phillips 2009; Raven 2010; Skow 2012a).

Let us call the followers of this trend *pro-raters*, and let us collectively refer to theses (a) and (b) as the *pro-rate objection*.[3] This paper is specifically dedicated to show that the pro-rate objection is, at a deeper scrutiny, less appealing than it might seem. More precisely, we shall demonstrate that pro-raters cannot consistently tell what the product of one second per second and one second is equal to, unless they embark on

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[2] Notice that it is possible to reformulate the argument in semantic terms, so as to lead to the conclusion that it is *meaningless* to say that time flows, or in modal terms, so as to deliver the conclusion that it is *impossible* for time to flow. Such variations, on the other hand, are immaterial to the following discussion. Similarly, we shall not hereafter distinguish between terms such as 'flow', 'pass', or 'move', which are perfectly interchangeable for the sake of the no-rate argument, nor as a consequence between 'speed' and 'rate of passage'.

[3] Not anyone who maintains that time flows at a rate of one second per second will accordingly qualify as a pro-rater in our sense. Once case in point is van Cleve (2011): like Maudlin, he endeavours to establish that one second per second (or, as he says, one hour per hour) is a meaningful rate of passage; however, he does so following in the footsteps of Prior (1958, 1968) and, as a result, he never explicitly addresses (3).

a substantive revision of the algebra of quantities.

2. The pro-rate answer to the multiplication problem

Let us present the pro-raters with the following question: what is one second per second multiplied by one second equal to? Formally put, this question reduces to the following equation

(6) $1\ \text{s/s} \times 1\ \text{s} = x$,

which we shall hereafter label the *multiplication problem*. Pro-raters, we shall argue, cannot offer any consistent solution to this problem, unless they give up some basic and common assumptions concerning the algebraic behaviour of quantities. But how could that be?

Pro-raters claim that one second per second is a genuine rate of passage, so they will presumably interpret the operation on the left-hand side of the equation in (6) as a multiplication between a rate of passage and a temporal duration. Consequently, they will plausibly agree that, as with any other multiplication of that form, the product of the multiplication in (6) should denote a measure of displacement, in adherence to the following schema:

(*) [rate of passage] × [duration] = [displacement].

More specifically, [displacement] should stay for the average distance covered, during a period of time whose duration is specified by [duration], by a mover travelling at the average speed represented by [rate of passage]. To elaborate, this means that a pro-rater should replace the unknown on the right-hand side of (6) with the distance travelled in a unitary interval of time by a mover proceeding at the average speed of one second per second.

To say of something that it literally flows or passes at the constant rate of one second per second, on the other hand, can only mean, if anything, that such thing covers a distance *of one second* per each unit of time elapsed. Therefore, it looks that a pro-rater would be bound to solve (6) in the following way:

(7) $1\ \text{s/s} \times 1\ \text{s} = 1\ \text{s}$.

So far, so good. Problems, however, start showing up when it is recognised that, quite trivially,

(8) $1\ \text{s} = 1 \times 1\ \text{s}$,

and thus (7) must be equivalent to

(9) $1\ \text{s/s} \times 1\ \text{s} = 1 \times 1\ \text{s}$.

Because multiplication is cancellative, this in turn leads to

(10) $1\ \text{s/s} = 1$,

which is precisely what premise (3) asserts, and what pro-raters deny.[4]

This quite simple argument shows that pro-raters can solve the multiplication problem only by renouncing at least one of the auxiliary assumptions respectively leading up to (9) and (10), or else by straightforwardly denying (7). The first alternative, however, would demand renouncing (8), thereby submitting that multiplying a scalar quantity by a number can produce a scalar quantity of a different kind, or maintaining that the multiplication in (9) is not cancellative. The second alternative, instead, would require denying that the product of a unitary rate of passage and a unitary duration be a unitary displacement, thereby violating the schema in (*). For short, this means that pro-raters must choose between remaining silent about the multiplication problem and radically reconceiving the way physical quantities can be algebraically obtained from one another. Either way, the pro-rate objection would lead to a scarcely appealing outcome.[5]

3. Objections

Simple arguments often hide unexpected threats, and there is little doubt that many will look at the above argument with suspicion. The following discussion is meant to dissipate their worries. However, we first need to make some preliminary terminological remarks. To play it safe, we shall borrow our definitions from Skow (2012a), who has arguably offered the most exact and technically informed defence of the pro-rate objection thus far.[6]

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[4] Let $*$ be an algebraic operation on a given set S. Then, $*$ is said to be cancellative (or to possess the cancellation property) if and only if the following two conditions hold for any $a, b, c \in S$:

(i) $a * b = a * c \rightarrow b = c$;

(ii) $b * a = c * a \rightarrow b = c$.

[5] Could not the pro-raters deny (7) while keeping (*), say by retorting that the latter schema does not apply to (6), but only to multiplications of the form [rate of passage] × [duration] in which [rate of passage] refers to the speed of material objects travelling in physical space? Or could not they alternatively admit that (6) does indeed satisfy (*), but insist that (7) does not give the correct solution to the multiplication problem? The first line of defence would not do, since (*) is itself but a special case of an even more general schema, according to which the product of a rate of change and a duration is equal to the variation occurred in the dependent quantity of change, whatever it be. Consequently, in that case pro-raters could keep (*) only at the price of contradicting the latter, more general schema. The second line of defence, on the other hand, would put them in the rather uncomfortable position of explaining how anything could move at a rate of one second per second without covering, per each second, a distance of one second. Either way, they would be left in no better predicament than if they chose to simply discard (*).

[6] The only exception is our definition of a numerical value, which Skow leaves implicit. For a more thorough treatment see Suppes and Zinnes (1963).

By a (*positive scalar*) *quantity* we shall mean a property whose determinates can be compared to one another in such a way that their set be isomorphic to the additive semigroup of the (positive) real numbers. This means that such a set is closed under some associative rule of composition, and that some function exists which takes the elements of that set as inputs and gives positive real numbers as outputs, so that the image of the composition of any two determinates in its domain is mapped into the sum of the corresponding images.

Let a *scale* be any such function, let us call the determinates of a quantity its *values*, and let the *numerical values* of a quantity (according to the chosen scale) be the images of its values (according to the scale function). Furthermore, let a scale s be *faithful* just in case there exists a unique value u, such that for any value v in the domain of s the ratio of $s(v)$ to $s(u)$ is identical to the ratio of v to u. Such a value u is what we shall call a *unit* of the given quantity, according to the scale s. Hereafter we shall only consider faithful scales.

Let us suppose, finally, that some class of quantities is taken as fundamental, in the sense that the scales and units employed to measure them suffice to determine the scales and units of all other quantities. Then, we shall say that the class of quantities so chosen uniquely determines a *system of scales*.

Given this conceptual apparatus, let us consider what kinds of objections might be moved to our argument. Because, as we have already noticed, the logical structure of the argument is quite simple, any mistakes we might have made should presumably concern the interpretation of the terms we employed. On the other hand, there can be no doubt as to the meaning of '1', while the referent of '1 s/s' is precisely the matter of contention. Therefore, we ought to question whether we have correctly understood what the pro-raters could mean by '1 s' and '×'.

3.1. Different times

Equation (10) was obtained from (9) thanks to the auxiliary assumption that × is cancellative. Therefore, we have argued, pro-raters can deny the logical inference from (9) to (10) only by denying the latter assumption. Still, it might be objected that this is not necessarily the case. To wit, it may be contended that the quantity denoted by '1 s' on the left-hand side of (7) is not the same quantity as the one that '1 s' denotes on its right-hand side. Therefore, the true reason why (10) does not follow from (9) is that the cancellation property cannot be meaningfully applied to the latter.

Making this objection would indeed make it possible for the pro-raters to deny (10) while maintaining (7), thereby allowing them to offer a simple

answer to the multiplication problem without the burden of revising the algebraic behaviour of quantities. The problem with it, however, is that it would make the pro-rate objection entirely irrelevant to the no-rate argument.

Pro-raters, we can safely assume, would presumably consider the quantity on the right-hand side of (7) as a genuine unit of time.[7] Therefore, if they want to insist that the quantity denoted by '1s' on the left-hand side of (7) is a different one, they are evidently obliged to understand it as the unit of some sort of temporal or quasi-temporal quantity other than time itself. The idea of such an additional temporal quantity is actually not new to the debate surrounding the objectivity of temporal passage, and it is equivalently referred to as the *super-time*, or *hyper-time*, or *meta-time*.

Now, why is the idea of the hyper-time detrimental to the pro-rate objection? The reason is that, if it was possible to distinguish between one second of time and one second of hyper-time, then one second of time and one second of hyper-time would have to be different units, and indeed units measuring different quantities. Thus it would be as much appropriate, yet less ambiguous, to refer to the latter unit as one *hyper-second*. This, in turn, would entail that the purported rate of the flow of time should be measured in units of time per unit of hyper-time, and that one second per hyper-second be a different quantity than one second per second, strictly understood as one second of time per second of time.

This fact would have two immediate and related consequences. Firstly, it would falsify premise (2), thus invalidating the no-argument at once.[8] Secondly, and most importantly for the present discussion, proving that one second per second is not identical to one would then establish nothing about the purported rate of the flow of time, which in that case would rather be equal to one second per hyper-second. Either way, rejecting premise (3) would then make absolutely no difference to the no-rate argument, so the pro-rate objection would become entirely moot.[9]

3.2. Different operations

The objection just examined was an attempt to block the logical inference

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[7] Owing to considerations of symmetry, this assumption will not affect in any way the generality of the following argumentation.

[8] For precisely this reason, the hypothesis of the hyper-time has been sometimes employed as a way to resist the no-rate argument, in particular by Schlesinger (1969, 1982, 1991) and, more recently, by Skow (2012b). For some classical objections to the hyper-time hypothesis see Smart (1949), Williams (1951) and Black (1959).

[9] The same would be true if the two occurrences of '1s' in (7) were respectively claimed to denote, say, one second-of-time-elapsed and one second-of time-covered.

from equation (9) to equation (10). There is, in fact, another way one may try and get to the same result. Rather than distinguishing between different referents of '1 s', one might argue instead that the algebraic operation that appears on the left-hand side of (9) is not of the same kind as the one which appears on its right-hand side: the former one, in fact, holds between two quantities, whereas the latter one holds between a quantity and a number.[10] Once again, this would ensure that the cancellation property does not correctly apply to (9), thus allowing the pro-raters to maintain (7) while denying (10).

The argumentation underlying this type of reply, however, is logically circular. To show why this is so, let us examine it in greater detail. The aim of our hypothetical objectors is to block the logical inference from equation (9) to equation (10). On the other hand, they must subscribe to (9), else they would have to give up (7) or (8), this way exposing their flank to our main argument, and making the current objection worthless as a consequence. Because they hold (9) to be true, then, their objective becomes equivalent to demonstrating that (10) is false.

The argument they set in place to this purpose, as we have seen, is based on the claim that the two algebraic operations that appear in equation (9) are of a different kind, and they are because they hold between different pairs of factors: the former one, in particular, holds between two quantities, whereas the latter one holds between a quantity and a number. On the other hand, because '1 s' is now assumed to have the same meaning on either side, the two operations have one factor in common. Furthermore, that factor is undeniably a quantity, namely a temporal duration. Therefore, the argument underlying the above objection actually reduces to this one: the two algebraic operations in (9) are of a different kind because the non-shared factor on the left-hand side of (9) is a quantity, whereas the non-shared factor on the right-hand side of (9) is a number.

Now, it is evident that hardly anybody would deny the latter clause. This means that, at a deeper analysis, the whole argument rests on the one contention that the non-shared factor on the left-hand side of (9), namely one second per second, is not a number. However, this is clearly but a different way to say that one second per second is not identical to one, which is precisely what the argument under examination was meant to prove. Put in a more condensed form, what our hypothetical objectors argue is that equation (10) is false because the two algebraic operations in (9) are of a different kind, and they are so because (10) is false. This

[10] Some pro-raters, such as Phillips (2009), may object that 1 s/s is not actually a quantity, but rather a relation between quantities (and it is precisely for this reason that 1 s/s cannot be reduced to 1 s / 1s, and hence to 1). This can be easily conceded, since it will make no substantive difference to the argumentation that is about to follow.

argument is evidently circular, and the consequent objection unsound.[11]

3.3. There is no algebra of quantities

So far we have been talking freely about algebraic operations between quantities, or between quantities and numbers. This was admittedly a bit incautious, since the objection that we are about to examine contends precisely that there is in reality nothing like the algebra of quantities, and that the symbol '×', as it is used in equation (7), refers instead to an algebraic operation between numerical values.

To wit, when we compute the average speed of a mover whose displacement in a given duration is known, we do not *literally* divide a length by a duration; rather, we divide the numerical value of the former by the numerical value of the latter, thereby obtaining the numerical value of speed as a result. The fact that the unit of speed is conventionally indicated by 'm/s', therefore, should not erroneously suggest that rates of passage can be obtained by dividing distances by durations, nor that units of speed can be obtained by dividing units of length by units of time. That is rather a mere 'shorthand method of statement', which specifies what unit of speed we ought to adopt if we want to be consistent with the chosen system of scales. However, '[i]t is meaningless to talk of dividing a length by a time', so 'we must not think that we are therefore actually operating with the physical things in any other than a symbolical way' (Bridgman 1922: 29).

Drawing on similar considerations, pro-raters might contend that the algebraic operation that appears in (7) holds in fact between the numerical value of the speed of the flow of time and the numerical value of the unit of duration. Therefore, what (7) actually implies, via (8) and

[11] But, it may be replied, in order to apply the cancellation property to (9) we implicitly presumed that the multiplication signs on either side of the latter referred to the one and the same algebraic operation. Because the operation on the right-hand side of (9) clearly obtains between a number and a quantity, we thereby assumed that the operation on the left-hand side of it should similarly obtain between a number and a quantity, thereby circularly presupposing that 1 s/s be a number. For this reason, one may conclude, our major argument suffers of precisely the same kind of vicious circularity as the one just pointed out. This reply, however, would rest on a false premise. For, while it is certainly true that we assumed that '×' should stay for the same operation on either side of (9), it is not true that, *as a consequence*, such operation should exclusively obtain between numbers and quantities: in fact, nothing *in that assumption* precludes that × could obtain between pairs of quantities *as well as* between quantities and numbers. One such operation could in fact be easily constructed in the way outlined in the next section, modulo some minor modifications. One may certainly retort, at this point, that if the operation in (9) was of a similar kind then it would certainly not be cancellative. However, this remark would hardly point to any circularity, as it would be nothing more than a different way of saying that, under the assumption that × be cancellative, equation (10) logically follows from (9).

(9), is that *the numerical value* of the rate of the flow of time is equal to one. This is, in consequence, all equation (10) entails. Contrary to appearances, (10) is accordingly *not* logically equivalent to (3), so our argumentation is vitiated by equivocation.

Replying to this objection will require a bit of elementary algebra, so to keep things as simple as possible let us agree to identify each quantity with the set of its values. Let thus T be the set of temporal durations and let t be any one of its elements; let s_T be the scale chosen to measure durations and let $\mathbf{R}_T$ be its codomain, namely the set of all the possible numerical values $\boldsymbol{r}_T$ that T can take on according to s_T. Similarly, let R be the set whose elements the pro-raters take to be values of the speed of time. Let r be any one of its elements; let s_R be the function that, according to pro-raters, is the scale chosen to measure R, let $\mathbf{R}_R$ be its codomain, and let $\boldsymbol{r}_R$ be any element of $\mathbf{R}_R$.[12]

Let us now briefly recall what algebraic operations are. For the sake of the present discussion, we only need to focus on binary operations. Thus, let A be a non-empty set, and let $A\times A$ be its Cartesian product, namely the set of all possible pairs of elements of A. Then, an algebraic operation on A is simply a map from $A\times A$ to A. The current objection submits that $\times$ is an algebraic operation between the numerical values of the rate of the flow of time and the numerical values of temporal durations, which in particular gives numerical values of temporal durations as a result. This means, therefore, that $\times$ is taken to be a partial function[13] from $(\mathbf{R}_R \cup \mathbf{R}_T)\times(\mathbf{R}_R \cup \mathbf{R}_T)$ to $\mathbf{R}_R \cup \mathbf{R}_T$, where $\mathbf{R}_R \cup \mathbf{R}_T$ is the Boolean union of $\mathbf{R}_R$ and $\mathbf{R}_T$. What the objection denies, on the other hand, is that $\times$ be a partial function from $(R \cup T)\times(R \cup T)$ to $R \cup T$. More generally, the objection has it that no such function as the latter one can possibly be defined.

To rebut that objection, therefore, we shall proceed in two steps. Firstly we shall demonstrate that, as a matter of fact, an algebraic operation from $(R \cup T)\times(R \cup T)$ to $R \cup T$ *can* be meaningfully defined. Secondly, we shall prove that such an operation is in all algebraically identical to $\times$, understood as an operation between numerical values.

So, let us concede that $\times$ be a partial function from $(\mathbf{R}_R \cup \mathbf{R}_T)\times(\mathbf{R}_R \cup \mathbf{R}_T)$ to $\mathbf{R}_R \cup \mathbf{R}_T$, as the objection wants it to be. This means that $\times$ takes ordered pairs of the form $(\boldsymbol{r}_R, \boldsymbol{r}_T)$ as the input, and it gives some numerical

[12] Notice that, if premises (2)-(4) are jointly true, then R will be not a set of values, but a set of numbers. By the same token, in that case s_T will be a ratio-preserving function from numbers to numbers. For ease of exposition, we shall hereafter keep similar parenthetical remarks implicit.

[13] The reason why $\times$ is a partial function is that it is restricted to ordered pairs of the form $(\boldsymbol{r}_R, \boldsymbol{r}_T)$ or $(\boldsymbol{r}_T, \boldsymbol{r}_R)$, to the effect that its domain does not include any ordered pair of the form $(\boldsymbol{r}_R, \boldsymbol{r}_R)$ or $(\boldsymbol{r}_T, \boldsymbol{r}_T)$. Notice, further, that while the codomain of $\times$ is $\mathbf{R}_R \cup \mathbf{R}_T$, its image coincides with $\mathbf{R}_T$.

value $\times(\boldsymbol{r}_R, \boldsymbol{r}_T)$ as the output. Furthermore let us notice that, by definition, a faithful scale must preserve the ratios between its arguments, to the effect that the ratio between any two numerical values in its codomain must be equal to the ratio between the corresponding counterimages. From this, it straightforwardly follows that a faithful scale must be injective, i.e. that to each numerical value in $\mathbf{R}_R$ corresponds exactly one value of speed, and to each numerical value in $\mathbf{R}_T$ corresponds exactly one value of duration. This also guarantees that the inverse functions $s_R^{-1}$and $s_T^{-1}$of the scales s_R and s_T exist. So, given these basic ingredients, here is the recipe to construct our map.

First of all, take some ordered pair of the form $(\boldsymbol{r}_R, \boldsymbol{r}_T)$ from $(\mathbf{R}_R \cup \mathbf{R}_T)\times(\mathbf{R}_R \cup \mathbf{R}_T)$. Next, apply two different projections to $(\boldsymbol{r}_R, \boldsymbol{r}_T)$, thereby obtaining $\boldsymbol{r}_R$ and $\boldsymbol{r}_T$ as a result. Then, for each such numerical value, determine the value to which the latter is assigned by means of the chosen scale: as we have just pointed out, this value must exist and it is unique. Take the two values $s_R^{-1}(\boldsymbol{r}_R)$ and $s_T^{-1}(\boldsymbol{r}_T)$ so obtained and combine them so as to form the ordered pair $(s_R^{-1}(\boldsymbol{r}_R), s_T^{-1}(\boldsymbol{r}_T))$, whose first term is a value of speed and whose second term is a value of duration.

In the meanwhile apply $\times$ to $(\boldsymbol{r}_R, \boldsymbol{r}_T)$. Take the numerical value $\times(\boldsymbol{r}_R, \boldsymbol{r}_T)$ so obtained and determine its counterimage as of the chosen scale for temporal durations, thus getting $s_T^{-1}(\times(\boldsymbol{r}_R, \boldsymbol{r}_T))$. Once again, the existence and uniqueness of this value are guaranteed by the faithfulness of s_T. Finally, take $s_T^{-1}(\times(\boldsymbol{r}_R, \boldsymbol{r}_T))$ along with the ordered pair already in your possession, so as to generate the ordered pair $((s_R^{-1}(\boldsymbol{r}_R), s_T^{-1}(\boldsymbol{r}_T)), s_T^{-1}(\times(\boldsymbol{r}_R, \boldsymbol{r}_T)))$.

Repeat the whole procedure for all ordered pairs consisting of a numerical value of speed and a numerical value of duration (and vice-versa), and gather the ordered pairs so obtained in one set. Let us call it $\otimes$. It is then immediate to see that $\otimes$ is a partial function from $(R \cup T)\times(R \cup T)$ to $R \cup T$, exactly as desired. This should suffice to prove that an algebraic operation between quantities such as speed and duration can be meaningfully defined.

Let us accordingly move on and let us show, as promised, that $\otimes$ is algebraically equivalent to $\times$. This can be demonstrated quite easily. Let f be the union of s_R and s_T. This means that f is a function from $R \cup T$ to $\mathbf{R}_R \cup \mathbf{R}_T$ such that, for any element x of $R \cup T$, $f(x) = s_R(x)$ if x is a value of speed, whereas $f(x) = s_T(x)$ if x is a value of duration. Notice that, because s_R and s_T are injective, so must be f, so the inverse function f^{-1} of f is well-defined. Now, take any pair of values in the domain of $\otimes$. Because of the very definition of $\otimes$, there must be $\boldsymbol{r}_R$ and $\boldsymbol{r}_T$ such that the pair just chosen must be unambiguously expressible as $(s_R^{-1}(\boldsymbol{r}_R), s_T^{-1}(\boldsymbol{r}_T))$. Then it is elementary to check that, by virtue of the very construction of $\otimes$, the following must be true:

(11) $\otimes(s_R^{-1}(\boldsymbol{r}_R), s_T^{-1}(\boldsymbol{r}_T)) = s_T^{-1}(\times(\boldsymbol{r}_R, \boldsymbol{r}_T))$.

This, on the other hand, is but a different restatement of:

(12) $s_R^{-1}(\boldsymbol{r}_R) \otimes s_T^{-1}(\boldsymbol{r}_T) = s_T^{-1}(\boldsymbol{r}_R \times \boldsymbol{r}_T)$.

Thanks to the definition of f, we thereby get:

(13) $f^{-1}(\boldsymbol{r}_R) \otimes f^{-1}(\boldsymbol{r}_T) = f^{-1}(\boldsymbol{r}_R \times \boldsymbol{r}_T)$.

Because $(s_R^{-1}(\boldsymbol{r}_R), s_T^{-1}(\boldsymbol{r}_T))$ was arbitrarily chosen, this is enough to show that f^{-1} is a partial magma homomorphism between $(\mathbf{R}_R \cup \mathbf{R}_T, \times)$ and $(R \cup T, \otimes)$; furthermore, it would be elementary to show that f^{-1} preserves cancellativity. This means, in particular, that if $\times$ satisfies the ordinary rules of multiplication that we employed in order to derive (10) from (7), then so must do $\otimes$. This proves that, however one chooses to interpret '$\times$', it is always possible to restate our main argument in terms of an algebraically equivalent operation $\otimes$, which does not hold between (numbers and) numerical values, but between (numbers and) quantities. Therefore, our argument suffers from no equivocation.

Before claiming victory, however, a possible counter-reply is worth a brief mention. To carry out our construction of $\otimes$, we took it for granted that operations such as Boolean unions and Cartesian products can be meaningfully defined on sets of values (and numbers). However, one might contend, this is precisely what the objection under examination denies: according to it, quantities are 'physical things', and as a consequence they cannot undergo the same sort of logico-mathematical manipulations as abstract entities such as sets and numbers. Therefore, our entire discussion is vitiated by a *petitio principii*.

This further worry, however, is easily dispelled. The whole construction of $\otimes$, as it can be easily checked, was directly based on the definitions given at the beginning of § 3, and it presupposed nothing about quantities which was not already taken for granted by those definitions. Just to make but one example, the very definition of a scale assumes that it is possible to take the Cartesian product of a set of values and a set of numbers. For consistency, anyone who wishes to make the above reply will then have to reject our definitions. The burden will be up to them, however, of proving that the conceptual foundations of measurement theory can be laid down without ever mentioning sets of values, or functions from values to numbers.

4. Conclusion

The no-rate argument is certainly one the strongest philosophical challenges to the idea that time possesses objective dynamical or flux-like

properties. Not by chance, throughout the last sixty years, philosophers who believe in the objectivity of the flow of time have made numerous attempts to avoid its conclusion. Pro-raters, in particular, insist that time may flow indeed at a rate of one second per second, because one second per second is not identical to one.

Even though the pro-rate objection has received much support in recent years, this paper has shown that it is in fact less appealing than it might look. In fact, we have demonstrated that pro-raters cannot consistently calculate the distance covered by time in a temporal unit, unless they want to insist that quantities do not satisfy the standard rules of multiplication. This result, of course, by no means guarantees that the no-rate argument is safe from rebuttal. Nonetheless, it certainly raises the question whether its rejection is worth the cost of a radical revision of the algebra of quantities.

REFERENCES

Black, M. 1959. The direction of time. *Analysis* 19: 54-63.

Bridgman, P. W. 1922. *Dimensional Analysis*. New Haven: Yale University Press.

Markosian, N. 1993. How fast does time pass? *Philosophy and Phenomenological Research* 53: 829-844.

Maudlin, T. 2002. Remarks on the Passing of Time. *Proceedings of the Aristotelian Society* 102: 259-274.

Maudlin, T. 2007. *The Metaphysics within Physics*. Oxford: Oxford University Press.

Mazzola, C. 2014. Does time flow, at any rate? *Metaphysica* 15: 157-172.

Olson, E. T. 2009. The rate of time's passage. *Analysis* 69: 3-9.

Phillips, I. 2009. Rate abuse: A Reply to Olson'. *Analysis* 69: 503-505.

Price, H. 1996. *Time's Arrow and Archimedes' Point*. Oxford: Oxford University Press.

Price, H. 2011. The Flow of Time. In *The Oxford Handbook of Philosophy of Time*, ed. C. Callender, 276-311. Oxford: Oxford University Press.

Prior, A. N. 1958. Time after time. *Mind* 67: 244-246.

Prior, A. N. 1968. Changes in Events and Changes in Things. In *Papers on Time and Tense*, ed. A. N. Prior, 1-14. Oxford: Oxford University Press.

Raven, M. J. 2010. Can time pass at the rate of 1 second per second? *Australasian Journal of Philosophy* 88: 1-7.

Schlesinger, G. N. 1969. The two notions of the passage of time. *Noûs* 3: 1-16.

Schlesinger, G. N. 1982. How time flies. *Mind* 91: 501-523.

Schlesinger, G. N. 1991. E pur si muove. *The Philosophical Quarterly* 41: 427-441.

Skow, B. 2011. On the meaning of the question "How fast does time pass?". *Philosophical Studies* 155: 325-344.

Skow, B. 2012a. One second per second. *Philosophy and Phenomenological Research* 85: 377-389.

Skow, B. 2012b. Why does time pass? *Noûs* 46: 223-242.

Smart, J. J. C. 1949. The river of time. *Mind* 58: 483-472.

Smart, J. J. C. 1954. The temporal asymmetry of the world. *Analysis* 14: 79-83

Suppes, P. and J. L. Zinnes. 1963. Basic Measurement Theory. In *Handbook of Mathematical Psychology*, ed. R. D. Luce, R. R. Bush and E. Galanter, 1-76. New York: Wiley.

Tallant, J. 2010. A sketch of a presentist theory of passage. *Erkenntnis* 73: 133-140.

van Cleve, J. 2011. Rates of passage. *Analytic Philosophy* 52: 141-170.

van Inwagen, P. 2009. *Metaphysics*, third edition. Boulder: Westview Press.

Webb, C. W. 1960. Could time flow? If so, how fast? *The Journal of Philosophy* 57: 357-365.

Williams, J. 1951. The myth of passage. *The Journal of Philosophy* 48: 457-472.

Zeilicovici, D. 1989. Temporal becoming minus the moving-now. *Noûs* 23: 505-524.

Zwart, P. J. 1972. The flow of time. *Synthese* 24: 133-158.

Zwart, P. J. 1976. *About Time*. Amsterdam and Oxford: North-Holland.

IS LOVE BASED ON REASONS?

JE LI LJUBAV UTEMELJENA NA RAZLOZIMA?

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ABSTRACT

The aim of the paper is to understand what is involved in the claim that a mental state in general and love in particular, is based on reasons. Love, like many other mental states, can be evaluated in various ways: it can be considered appropriate, deserved, enriching, perverse, destructive etc. but this does not mean that love is based on reasons. In this paper I present and defend a test that a mental state has to satisfy if it is to count as based on reasons. This test will be used to construct a new argument in favour of Frankfurt's position that love is not based on reasons.

Keywords: love, reasons, Frankfurt, Kolodny

SAŽETAK

Cilj rada je razumjeti što uključuje tvrdnja da je mentalno stanje, posebice ljubav, utemeljena na razlozima. Ljubav, poput mnogih drugih mentalnih stanja, može biti vrednovana na različite načine: može ju se smatrati svrsishodnom, zasluženom, obogaćujućom, perverznom, uništavajućom itd., no to ne znači da je ljubav utemeljena na razlozima. U ovom radu prezentiram i branim test kojega mentalno stanje treba zadovoljiti ako ga se želi smatrati utemeljenim na razlozima. Gore spomenuti test će se koristiti prilikom konstruiranja novog argumenta u korist frankfurtskog gledišta da ljubav nije utemeljena na razlozima.

Ključne riječi: ljubav, razlozi, Frankfurt, Kolodny

HERE GOES NOTHING

BOLJE NIŠTA NEGO IŠTA

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ABSTRACT

Subtraction arguments (SAs) support the view that there might have been nothing. The best-developed SA to date, due to David Efird and Tom Stoneham, is claimed by its authors to entail that there are worlds in which there are space-time points but no concrete objects: Efird and Stoneham hold that space-time points are not concrete and that a world made up from them alone contains nothing concrete. In this paper it is argued that whole space-times are concrete and subtractable, so that a subtraction argument commits us to a bolder conclusion: namely, that there are worlds in which there is no space-time (and nothing else concrete). This result has far-reaching consequences: it supports the view that there might have been no time; and constrains accounts of possible worlds. In the course of developing this revised subtraction argument, I counter suggestions (made by Ross Cameron, amongst others) that SAs are question-begging.

Keywords: subtraction argument, metaphysical nihilism, material objects, concrete objects, space-time, possible worlds, empty world

SAŽETAK

Argumenti oduzimanja podržavaju gledište da možda postoji ništa. Najbolje razvijeni argument oduzimanja do danas, Davida Efirda i Toma Stonehama, tvrdi – preko svojih autora – da postoje svjetovi u kojima postoje prostorno-vremenske točke no ne postoje konkretni objekti: Efird i Stoneham drže da prostorno-vremenske točke nisu konkretne i da svijet koji je sastavljen samo od njih ne sadrži ništa konkretno. U ovome je radu argumentirano da su svi prostori/vremena konkretni i podložni oduzimanju te nas zbog toga argumenti oduzimanja prisiljavaju na hrabriji zaključak: naime, da postoje svjetovi u kojima nema prostora/vremena (i ničeg drugog konkretnog). Ovaj rezultat ima dalekosežne posljedice: podržava gledište da možda nema vremena i ograničava iskaze o mogućim svjetovima. Tijekom razvoja ovog revidiranog argumenta oduzimanja, suprotstavljam se prijedlozima (Rossa Camerona, među ostalima) da argumenti oduzimanja sadrže logičku pogrešku petitio principii.

Ključne riječi: argument oduzimanja, metafizički nihilizam, materijalni objekti, konkretni objekti, prostor-vrijeme, mogući svjetovi, prazni svjetovi

RELATIVE MODALITY AND THE ABILITY TO DO OTHERWISE

RELATIVNA MODALNOST I SPOSOBNOST DA SE DJELUJE DRUGAČIJE

RALPH STEFAN WEIR
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ABSTRACT

It is widely held that for an action to be free it must be the case that the agent can do otherwise. Compatibilists and incompatibilists disagree over what this ability amounts to. Two recent articles offer novel perspectives on the debate by employing Angelika Kratzer's semantics of 'can'. Alex Grzankowski proposes that Kratzer's semantics favour incompatibilism because they make valid a version of the Consequence Argument. Christian List argues that Kratzer's semantics favour a novel form of compatibilism. I argue that List's compatibilist application of Kratzer's semantics faces problems not faced by Grzankowski's incompatibilist employment of them. On the other hand I argue that Kratzer's semantics make Grzankowski's version of the Consequence Argument valid only at the cost of rendering it dialectically useless. Contrary to both views Kratzer's semantics do not appear to add substantial weight to either side of the compatibilism/incompatibilism dispute.

Keywords: free will, determinism, compatibilism, consequence argument

SAŽETAK

Općenito se smatra da bi neka radnja bila slobodna, onda mora postojati mogućnost da djelatnik djeluje drugačije. Kompatibilisti i inkompatibilisti ne slažu se oko toga što donosi ova sposobnost. Dva nedavno objavljena članka donose novije perspektive u debatu uključivši semantiku glagola „moći" Angelike Kratzer. Alex Grzankowski smatra da Kratzerkina semantika favorizira inkompatibilizam stoga što čini valjanim verziju argumenta posljedice. Christian List argumentira da Kratzerkina semantika favorizira noviji oblik kompatibilizma. Ja argumentiram da Listova kompatibilistička primjena Kratzerkine semantike nailazi na probleme kojih nema kod Grzankowskijeve inkompatibilističke primjene iste. S druge strane, argumentiram da Kratzerkina semantika čini Grzankowskijevu verziju argumenta posljedice valjanom samo po cijenu označavanja istog kao dijalektički

beskorisnog. Suprotno obama stajalištima izgleda da Kratzerkina semantika ne dodaje značajniju težinu ni na kojoj strani kompatibilističko-inkompatibilističke rasprave.

Ključne riječi: slobodna volja, determinizam, kompatibilizam, argument posljedice

ONE SECOND PER SECOND MULTIPLIED BY ONE SECOND

SEKUNDA NA SEKUNDU POMNOŽENA SA SEKUNDOM

CLAUDIO MAZZOLA
University of Queensland

ABSTRACT

Detractors of temporal passage often argue that it is meaningless to say that time passes or flows, else time would have to pass at a rate of one second per second, which is in fact not a rate but a number, namely one. Several attempts have been recently made to avoid this conclusion, by retorting that one second per second is in fact not identical to one. This paper shows that this kind of reply is not satisfactory, because it demands a substantive revision of the algebraic behaviour of quantities.

Keywords: time, flow, rate, speed, quantity

SAŽETAK

Kritičari vremenskog prolaženja često argumentiraju da je besmisleno reći kako vrijeme prolazi, protječe, budući da bi onda vrijeme trebalo prolaziti mjerom brzine sekunde na sekundu što činjenično nije mjera brzine već broj, naime jedan. Nedavno je poduzeto nekoliko pokušaja kako bi se izbjegao ovakav zaključak: odgovorom da sekunda na sekundu zapravo nije identična broju jedan. Ovaj rad pokazuje da ovakva vrsta odgovora nije zadovoljavajuća zbog toga što zahtjeva nezavisnu reviziju algebričnog ponašanja količine.

Ključne riječi: vrijeme, protok, mjera brzine, brzina, količina

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