Does Resemblance Really Matter?

A Commentary on Gerard O'Brien

Anne-Kathrin Koch

In this commentary on Gerard O'Brien's "How does mind matter?—Solving the content causation problem", I will investigate the notion of *representational content* presented in the latter. With this notion, O'Brien aims at giving an explanation of how mind matters in physicalist terms. His argumentation is motivated by, and supposedly directed towards, a problem he calls *the content causation problem*. Regarding this, I am most interested in reconstructing how his account relates to the presuppositions that make this problem so pressing in philosophical enquiry. O'Brien provides a very interesting answer to the question of "why mental content matters", as motivated by the content causation problem. In particular, I will try to show that by making use of the notion of dispositions, it provides an interesting way of avoiding the presupposition that understanding content causation always requires the reduction of individual relational properties to individual intrinsic properties—probably because it is presupposed that such a reduction is impossible.

Commentator

Anne-Kathrin Koch
anne-kathrin.koch@gmx.de
Johannes Gutenberg-Universität
Mainz, Germany

Target Author

Gerard O'Brien
gerard.obrien@adelaide.edu.au
University of Adelaide
Adelaide, Australia

Editors

Thomas Metzinger
metzinger@uni-mainz.de
Johannes Gutenberg-Universität
Mainz, Germany

Jennifer M. Windt
jennifer.windt@monash.edu
Monash University
Melbourne, Australia

1 Introduction

Gerard O'Brien's paper "How does mind matter?—Solving the content causation problem" (this collection) is situated at the border of philosophy and cognitive science. The subject matter, as announced by the title, is the causal efficacy of mental content, especially of representational content. O'Brien approaches this subject in three argumentative steps: first he introduces us to a problem called the *content causation problem*, then he proposes a conception of representation that he calls the *triadic conception of representation*, and, third, he enriches this concept by proposing a second-order similarity theory of content determination.

In this commentary I will try to reconstruct how these three points relate to each other, focusing in particular on the role that the content causation problem plays in the other two argumentative steps. O'Brien's theory of representational content and its causal efficacy is doubtlessly interesting even when considered in isolation, as I will briefly outline in section 2. In section 3, I will try to show that the content causation problem demands us to be more specific than when just investigating the question of how mind matters. In section 4, I will try to show how O'Brien's account of the relational character of mental content, which is at the core

of his argumentation, gains its philosophical relevance from implicit assumptions that form the conceptual foundations of the content causation problem as here formulated. In an attempt to assess whether his account must really be regarded as *solving* the content causation problem, I will highlight in section 5 how important it is to be specific about what we really mean if we suppose that representation is somehow *relational* in character.

2 How mind might matter

In his paper in this collection, Gerard O'Brien confronts the task of "explaining how mind matters" (p. 12). He does so, because he—rightly, I believe—identifies the fact "that our minds matter—that our beliefs and desires, and our perceptions and thoughts ultimately have a causal impact on our behaviour" as a ubiquitous and well-accepted, but unexplained phenomenon (p. 1).

O'Brien's investigation is motivated by the following question: "[h]ow can mental phenomena be causally efficacious of behaviour in virtue of their representational contents if those contents are not determined by intrinsic properties of the brain?" (O'Brien this collection, p. 2) He calls this question the "content causation problem" (ibid., p. 2). This specific way of approaching the matter of mental causation is set in the context of "three widely accepted theses about mental phenomena and their physical realization in the brain" (ibid., p. 2): (i) the supposed causal efficacy of mental phenomena is grounded in their representational contents, which, (ii) are taken to be *relational* properties of those phenomena (ibid., p. 2–3); and (iii) the results of neuroscience, which already provide us with an explanation of how behaviour is caused, only make use of the brain and its *intrinsic* properties in their explanation (ibid., p. 2). Hence, there is a need for an explanation of behaviour being caused by mental phenomena in virtue of their relational properties, and this explanation cannot easily make use of the explanation of the causation of behaviour that has already been provided by contemporary neuroscience. At first, it looks as if this shortfall is exactly what O'Brien is addressing.

Philosophical mainstream accounts of representation, O'Brien reminds us, are built on an understanding of representation as a two-place relation. Representational content is thus described in terms of *aboutness* and/or *reference.* O'Brien, however, advises us to abandon the traditional understanding of the notion of representation, i.e., the idea that representation is a two-place relation and adequately phrased in terms of one thing being *about* another (O'Brien this collection, p. 3–4). Instead, he proposes a triadic conception of representation, making representation a three-place relation between a represented object, a representing vehicle, and an interpretation (ibid., p. 5).

In the triadic picture, interpretation is "a cognitive effect [of the object] in the subject", thereby establishing a relationship between this subject and the represented object (O'Brien this collection., p. 5). The ingenious move here, of course, is that interpretation is explained in *causal* vocabulary. We should think of interpretation as "presumably implicating the production of mental representing vehicles" possessing new properties, which should in turn be thought of as "bring[ing] the subject into some appropriate relationship to the original vehicle's represented object" (ibid., p. 5), i.e., "modifying [the subject's] behavioural dispositions" (ibid., p. 6). At first, when O'Brien further describes those vehicles as "hav[ing] [...] cognitive and ultimately behavioural effects" (ibid., p. 6), it isn't clear exactly which category we are dealing with. I take the relata of the causation relation to be events, but understand talk of vehicles to be talk about objects.[1] I suggest that we understand the vehicles as modifying the system's behavioural dispositions insofar as, once produced, they have certain properties that are directly and specifically relevant for a causal process to take place (given that some sort of stimulus initiates the causal process). If we adopted a view of dispositions as second-order properties, i.e., the property of having certain properties that

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1 If we want to avoid reification of the "vehicles", we might look at it them as time-slices in a complex, internal chain of events, i.e., of dynamic inner processes modifying a subject's global dispositions.

can be causally relevant (cf. Choi & Fara 2014), this would allow us to think of the vehicles as modifying global dispositions of a system as a whole, in the sense of *providing new ones*—that is, by themselves having novel dispositional properties. This way, we can analyze the obtaining of the representation relation as a specific causal process having taken place: the first step of that process is the triggering of the cognitive effect by the representandum (the first relatum); the second relatum is the event of interpretation itself; and the third relatum is the new vehicle produced during the event of interpretation that provides the subject with a new behavioural disposition towards the representandum. The representational character of mental content, in this picture, just rests on what we call "content" resulting from the multi-layer causal process described above.[2]

O'Brien's triadic account of representation describes the obtaining of the representation relation not in terms of our everyday intuitions about representation, but in terms of the job it is supposedly doing for us: bridging the gap between whatever is going on in the sphere of "the mental" and the external world by alluding to the causal chain that unites the two. It is thus understandable why the dyadic conception might be accused of hiding behind terms like "aboutness" or "reference": saying that something mental is about something external is just saying that there is a gap being bridged. Saying that something external sets a three-step causal chain in motion with the result that a subject has undergone a specific change in her behavioural dispositions seems much closer to saying what the bridge is made of.

Yet we should still dispose of the vague language of "specific change in her behavioural

dispositions". What exactly makes this change specific? It was called "specific" because it selectively relates back to the object that set the causal chain in motion in the first place and which we would like to keep calling "the represented object."[3] But how can the change in a subject's behavioural dispositions make them pick out the exact same object from which this change originates?[4] The answer to this lies in the theory of content determination.

When holding that the representing vehicle brings about a change in the subject's behavioural dispositions, causal theories of content determination are supposedly to be abandoned because of a "disconnect between world–mind causal relations and a system's behavioural dispositions" (O'Brien this collection, p. 12). An appropriate theory of content determination—so says a desideratum that we gain from the results of the triadic analysis of representation—must "explain how [inner vehicles] endow systems with the capacity to respond in a discriminating fashion towards [external conditions]" (ibid., p. 12). For fulfillment of this criterion, O'Brien turns to *resemblance theories* of content determination, which "hold that representing vehicles are contentful in virtue of resembling their represented objects" (this collection, p. 9).

Within the triadic conception of representation, O'Brien identifies two hurdles for a resemblance theory that still need to be overcome: it must be shown how the theory can be compatible with physicalism, and it must be secured that the theory does not leave content indeterminate (ibid., pp. 9–11).

In order to secure the compatibility of a resemblance theory of content determination with physicalism, O'Brien turns away from the notion of *first-order resemblance* and instead makes use of *structural* or *second-order resemblance* (ibid., pp. 10–11). He thus avoids the seemingly naive and implausible thesis that

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2 It might be said that this understanding of representation is plausible for paradigmatic cases of representation, like the representation of material objects, but that it is less clear whether it is also fit to capture cases that differ strongly from those paradigms, like the representation of abstract "objects".
A similar worry, which has been pointed out to me by an anonymous reviewer, concerns cases of *fictional* representations, e.g., future events. For this specific example, she/he suggests that we allow for the causal chain to be reversed. This would make the representandum part of the final event. However, this solution applies only to those cases of fictional representation where the representandum does *not yet* exist, but leaves the majority of cases of fictional representation inexplicable.

3 I will, inspired by O'Brien's terminology, keep refering to the representandum as the represented *object*. The term "object" is thereby used in a very wide sense and not intended to be restricted to single material objects. What exactly can take the place of an object in O'Brien's story of representation is yet to be determined.

4 This question presupposes that the established representation is actually correct and not a case of misrepresentation.

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mental representations must actually share properties with what they represent (ibid., p. 10). Resemblance is taken to a more abstract level where, for example, something red can be mentally represented *with the representation resembling the representandum*, but *without* them both sharing the property of being red (ibid., pp. 10–11).

The second hurdle might seem redundant at first glance. Explaining how content is determined is basically the job description of a theory of content determination. It is still worth mentioning this as an obstacle, however, because the reliance on second-order resemblance makes this job look particularly difficult: second-order resemblance is too easily established. If a set of mental representations second-order resembles a pattern of colour shades, it might in virtue of the same relational organization also second-order resemble a pattern of locations in a two-dimensional space. Nevertheless, O'Brien trusts that within the triadic conception of representation, second-order resemblance will do the job. The idea is that some of the possibilities for the content of a vehicle that are left open by second-order resemblance are ruled out in the process of interpretation—interpretation is "content-limiting" by "anchoring vehicles" in "domains" (O'Brien this collection, p. 11). The preexisting behavioural dispositions influence the newly developing ones, so that they are not directed towards all domains with a specific relational organisation, but towards a selection of these.

So far, O'Brien has provided us with an interesting account of how mental phenomena are causally efficacious in virtue of their representational contents: the property

> *x* has representational content

is analyzed as the property

> *x* results from a causal process that brings about behavioural dispositions towards the object that triggered the causal process.

These behavioural dispositions, given their respective stimuli, can now yield causal effects.

But if we took this as O'Brien's only accomplishment, we would miss the most interesting part of his argument. Furthermore, we would take the second step before the first.

3 Content and causation: from a question to a problem

So far, I have interpreted O'Brien's formulation of the content causation problem ("How can mental phenomena be causally efficacious of behaviour in virtue of their representational contents if these contents are not determined by intrinsic properties of the brain?" O'Brien this collection, p. 2) as something along the lines of "How does mental causation in virtue of representational content work, if not in the way we already know it sometimes works?" In so doing, one already engages in an interesting discussion about content causation. But closer examination reveals that this understanding of the problem is an oversimplification. The content causation problem is supposed to be much more severe. It is not a problem about finding alternative explanations to the ones we already have, but about the *consistency* of all available explanations. A better understanding of the problem will help us to evaluate whether O'Brien's suggestions, which are doubtlessly interesting, are really motivated by the problem at hand.

The three theses, that (i) the causal efficacy of mental phenomena is grounded in their representational contents, that (ii) these "are not determined by the intrinsic properties of the brain" (O'Brien this collection, p. 2), and that (iii) the brain's causal efficacy for behaviour is grounded only in its *intrinsic* properties, supposedly "form an inconsistent triad" (ibid., p. 2). Yet, strictly speaking, they are not inconsistent: why not say that what we do in theses (i) to (iii) is gathering information about (human) behaviour—our object of enquiry—but on two levels of description? On both levels, we attempt, metaphorically speaking, to travel back along the causal chain that brings behaviour about. On the one level, we then discover that intrinsic properties of the brain are responsible for it to cause behaviour (ibid., p. 2, thesis 3). On another level, we trace behaviour back to

mental phenomena, which owe their capacity to cause it to their representational contents (ibid., p. 2, thesis 1). Why not assume that these two levels both provide us with (true) formulations of what is happening, but which—since they depend on two conceptual frameworks that are not intertranslatable—must be regarded as *nomologically incommensurable*? If so, they could never both be part of a unified causal theory (see Davidson 1970). This picture seems perfectly intelligible at first. But on both levels, we talk about causes of (presumably the same) behaviour.

Within a physicalist framework, we take behaviour to fall, in the end, under the description of a physical event. As such, it is subject to *the principle of causal closure*: if it is caused, it has a sufficient physical cause (Kim 1989, p. 43). Hence, we should pay close attention to the fact that "our best neuroscience informs us that the changes to musculature that constitute our behavioural responses are wholly determined by the intrinsic properties of the brain to which they are causally connected" (O'Brien this collection, p. 2). Thus it is not only assumed that the brain *can be* causally efficacious of behaviour in virtue of its intrinsic properties, but also that w*henever* behaviour is caused, it is *always* caused in the brain and in virtue of the brain's intrinsic properties. Yet mental phenomena, which are of a non-physical kind, are also mentioned in (i) as a cause of behaviour. But with brain states already providing a sufficient cause for behaviour, what role in causation can they possibly play (Kim 1989, pp. 43–44)? As long as we cannot answer question, we are forced to reject the possibility that behaviour is *over-determined,* or, in other words, we are forced to accept both mental phenomena and brain states as two *separate* causes of behaviour. So causally efficacious mental phenomena should be reducible to the physical cause already provided by the states of the brain, or we must conclude that they are not a cause at all. In the latter case, this would mean that we would have to deny "that our beliefs and desires, and our perceptions and thoughts ultimately have a causal impact on our behaviour" (O'Brien this collection, p. 1) and we would

have to accuse every discipline accepting this tenet—O'Brien names folk psychology and the computational theory of mind (ibid., p. 2)—of operating with a faulty ontology, pointing out causes that do not really exist.[5]

Now we have made explicit a metaphysical constraint that was left implicit in the formulation of the content causation problem: mental properties and all their capacities, e.g., their capacity to cause behaviour, must be reducible to properties of the physical brain. Knowing this, we see where the supposed inconsistency comes from: we traditionally think of representational content not as determined by the brain's intrinsic properties, but rather as determined by what it is about (O'Brien this collection, p. 2–3). But if the content causation problem dares us to integrate these two things, namely the description of mental phenomena as causing behaviour in virtue of their representational contents and our theory of the same behaviour being caused by processes in the brain in virtue of the brain's *intrinsic* properties, then we might conclude with O'Brien:

> A solution to the content causation problem requires something that prima facie appears impossible: an explanation of the relational character of mental content that invokes only the intrinsic properties of the brain. (this collection, p. 3)

This is what turns the content causation problem as formulated by O'Brien from an interesting question into an urgent philosophical problem. The apparent impossibility of a solution relies on the idea of a sharp distinction between relational and intrinsic properties. If our best shot at understanding whatever we describe as the "relational character" of representational content is to understand it as a relational property,[6] then its irreducibility to intrinsic properties of the brain is built into it—and so is the insolvability of the content causation problem, given the metaphysical constraint just men-

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5 The threat lurking in the background is, of course, eliminative materialism (cf. Churchland 1981).

6 Remember that this kind of property is even referred to as "not determined by the intrinsic properties of the brain" (O'Brien this collection, p. 2).

tioned. Nevertheless, O'Brien aims to provide a solution.

4 The relational character of representational content

We see now that an attempt to solve the content causation problem must address the question of how the specific character of representational content can be analyzed in a way that invokes only the intrinsic properties of the brain (instead of being understood as "being a relational property and not an intrinsic property of the brain"). However, O'Brien advertises a theory of content determination that draws on second-order similarity between mental vehicles and the outside world as necessary for a solution to the content causation problem. In fact, he admits that "all theories of mental representation, in their efforts to explain the relational character of mental content, are forced to invoke world-mind relations of some kind", where the latter term seemingly refers back to "relations that incorporate factors beyond the brain" (O'Brien this collection, p. 12). But how does this relate to the explicit goal of providing "an explanation of the *relational* character of mental content that invokes only the *intrinsic* properties of the brain", which would only "prima facie [appear]" to be, but not—as the content causation problem is supposed to have a solution —actually *be* "impossible" (O'Brien this collection, p. 3)?

The answer to this might lie in a view which can be found in O'Brien & Opie:

> Von Eckardt observes that the triadicity of representation in general, and mental representation in particular, can be analysed into two dyadic component relations: one between representing vehicle and represented object (which she calls the *content grounding* relation); the other between vehicle and interpretation [...] This suggests that any theory of mental representation must be made up of (at least) two parts[7]: one that explains how the content

of mental vehicles is grounded, and a second that explains how they are interpreted. (2004, p. 5)

When O'Brien writes that every theory of representational content, including his own, must make use of factors extrinsic to the brain, he most likely refers to the content grounding relation—in his case, second-order resemblance. Yet when he promises us "an explanation of the relational character of mental content that invokes only the intrinsic properties of the brain" (O'Brien this collection, p. 3), the scientific explanation mentioned most likely refers to the other part of the theory of mental representation: the internalist theory of interpretation. If O'Brien takes it that only this theory, which provides us with a reconstruction of the causal processes involved in mental representation, needs to be presented in terms of intrinsic properties of the brain, then he provides an account within the "narrow content program" (ibid, p. 3): this research program accepts the thesis that "[t]he representational contents of mental phenomena are not determined by the intrinsic properties of the brain" (ibid., p. 2) but— quite plausibly, I think—relaxes the metaphysical constraint made explicit in section 3 insofar as it only demands "an account of mental phenomena according to which *(at least the causally relevant component of) their representational properties* are determined by intrinsic properties of the brain" (ibid., p. 3, my emphasis).

If this is a correct reconstruction of O'Brien's steps towards a solution to the content causation problem, then he has reached his goal if he:

a) has provided an account of the causally-relevant components of representation that makes use of only the intrinsic properties of the brain, and
b) can make sure that this account still deserves to be called an account of representation, i.e., captures the specific characteristics of representational content that we have so far called "relational".

O'Brien claims that "[t]he insight offered by triadicity is that the relational character of mental

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7 A third relation that one might want to look at when "taking apart" the triadic relation of representation is the relation between interpretation and represented object.

content is to be discharged ultimately in terms of our behavioural dispositions towards features of the world" (this collection, p. 12). While it might not be clear at first sight why this provides a solution to the problem at hand, I am convinced that a view of dispositions as second-order properties—such as the property of having a property that becomes relevant for the causing of a certain manifestation once a certain stimulus is provided—helps us to see how O'Brien's account provides a solution. I hope to have shown in section 2 how the adoption of the view that dispositions are second-order properties fits into his picture of representation. Thus I believe that it allows us to regard the first of the two requirements mentioned above as fulfilled: I see no reason why such a second-order property should not be understood as an intrinsic property of the brain. Furthermore, I hold that this view allows us to regard the second requirement as fulfilled, too: the dispositions in question seem to deserve the label "relational" insofar as, when combined with a certain stimulus, they are manifested in terms of overt, observable behaviour of a biological organism. When so manifested, they turn into concrete chains of events linked by causal *relations.* One can now argue that these potential relations are what let us intuitively characterize representation as relational. So understood, O'Brien's explanation does justice to the project of providing an account that captures the specific character that makes representational content deserve the label "representational", but without characterizing its causally efficacious components as being relational properties.

5 The content causation problem and second-order resemblance relations

If this is to be seen as a successful analysis of representational content in terms of intrinsic properties of the brain, we can conclude that the triadic picture alone—with its analysis of the relational character of representational content in terms of dispositions—already solves the content causation problem. Hence, this problem, by itself, offers criteria that could be turned into an argument for or against any specific theory of content determination.

Such a theory, as I understand it, serves two purposes: it explains how the contentful vehicles of which the theory of interpretation makes use are individuated, and it explains "how relations between mental vehicles and their represented objects can endow subjects with the capacity to respond selectively to those very features of the world" (O'Brien this collection, p. 6). It thus provides the background information necessary for understanding why the theory of interpretation is able to do what is required of it. The second desideratum is only made clear if the triadic account of content causation is adopted. According to O'Brien, it can only be fulfilled if we adopt the resemblance theory of content determination, because "[t]he obtaining of causal relations between external conditions and inner vehicles cannot explain how the latter endow systems with the capacity to respond in a discriminating fashion towards the former" (ibid., p. 12), whereas "resemblance does offer some prospect of a solution to the content causation problem. The key here is that the mere obtaining of the resemblance ensures that the former have properties that can be exploited to shape the behavioural dispositions of cognitive systems towards the latter" (ibid., p. 12).

Let us recapitulate the steps that took us from the content causation problem to the second-order resemblance theory of content determination. The content causation problem motivates the triadic account of representation if we assume that it is a problem about reduction and if we assume that there is a sharp distinction between relational and intrinsic properties that forbids an analysis of the former in terms of the latter, thus preventing the reduction of a theory of causally efficacious mental phenomena to a theory of brain-based causation of behaviour. The triadic account of representation solves this problem by showing us that we need not assume that representational content owes its specific character to relational properties. Dispositions, understood as non-relational second-order properties, do justice to our concept of "relational character". The triadic ac-

count then needs to be enriched by a theory of content determination, and its use of the concept of a "disposition" leads to a new requirement: to explain how inner vehicles can enable a subject to respond selectively towards external objects. Supposedly, only second-order resemblance can fulfill this requirement. Thus understood, a second-order resemblance theory of content-determination is only indirectly relevant to a solution of the content causation problem.

Yet I would like to point out a way in which the second-order resemblance theory itself relates to the content causation problem. Second-order resemblance between vehicles and objects tells us that there is a mapping from objects to vehicles that is pattern-preserving or, in other words, some objects and some vehicles are alike in some of their relational properties. Nevertheless, the kind of pattern involved is to be "sustained by constraints inherent in the vehicles, rather than being imposed extrinsically" (O'Brien this collection, p. 11, footnote 11). The relations constituting a structure or pattern collectively supervene on the distribution of intrinsic properties of objects and vehicles, although individual extrinsic (and specifically relational) properties of objects and vehicles do not. This strategy of explanation is in principle also available to our understanding of content: contents, fixed by a structural organisation of vehicles, are relational in the same, completely unproblematic sense. Representational contents may not *individually* be determined by intrinsic properties of the brain, but there is a sense in which they are so collectively. But this might count as evidence against the second thesis of the content causation problem: that "[t]he representational contents of mental phenomena are not determined by the intrinsic properties of the brain" (ibid., p. 2). One might then even say that content is *not relational at all*, and that the puzzle that actually troubles us is the question of how representations can have something to which they are applied, namely a "*target*" (Cummins 1996, p. 8).[8] This could still be accounted for by the triadic picture of represent-

ation, but it would then not amount to *solving* the content causation problem, but to rejecting it.

6 Conclusion

In his target article, Gerard O'Brien addresses the question of "how the specifically representational properties of mental phenomena can be causally efficacious of behavior" (this collection, p. 12). When he does so, there are two parts of the problem to be considered: the first is explaining how mind matters, and the second is showing how an answer can prevail in the light of the content causation problem. Considering the first part in isolation, O'Brien provides an interesting answer. He translates our talk of representation into causal vocabulary, thereby making it possible to reach a concept of causally efficacious representational content. In order to understand how O'Brien's account needs to be assessed with regard to the second part, one first needs to reconstruct which background assumptions make the content causation problem so pressing.

I am convinced that the issues of *reduction* and the *relational/intrinsic property distinction* need to be addressed in order to understand whether and how the content causation problem can motivate an account like O'Brien's. His account takes as a starting point that representational content has a relational character, but should not be understood in terms of relational properties. Rather, as we have seen, it should be understood in terms of dispositions—which can, if manifested, establish causal relations, but are not relational by themselves. I hope to have provided a reconstruction of how this starting point is used to reach the conclusion that, as O'Brien formulates it, "resemblance theories appear obligatory, since they alone offer some prospect for explaining how mind matters" (this collection, p. 12).

If this is correct, there remains one question: whether resemblance theories of the proposed kind might themselves indicate that the content causation problem rests on a mistake. The problem presupposes further problems about the role of relational and intrinsic proper-

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8   I owe this point to an anonymous reviewer.

ties that need not be addressed in order to account for the causal efficacy of representational content. The content causation problem's not arising in the first place would, of course, not undermine O'Brien's highly interesting account. It is only that this problem could no longer be used to motivate the argumentative steps he takes. Still, his account is illuminating for many other reasons, such as translating mysterious talk about "being about" into naturalistic terminology. However, whether we can regard the content causation problem as solved or rather as successfully rejected is not clear; but instead of worrying about this problem, we might now turn towards the details of O'Brien's account. An interesting starting point for such further inquiry might be to try to reach a better understanding of the role and the kind of *dispositions* and *vehicles* involved in causal processes, for they form two of the key concepts in O'Brien's theory.

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