Does matter have non-dispositional intrinsic qualities?
Sydney Shoemaker against quidditism

Dmytro Sepetyi

Abstract. The article discusses the problem of the existence of the fundamental non-dispositional intrinsic qualities of matter (quiddities) and arguments for two opposite views, quidditism and dispositionalism (causal structuralism). In support of quidditism, arguments by Howard Robinson, John Foster and Philip Goff are deployed. These arguments highlight the incoherence or unintelligibility of the doctrine that the whole reality is just a network of causal relations without any qualitative filler in the nodes of the network. Sydney Shoemaker’s influential argument for dispositionalism, in the article «Causality and Properties», is analysed and responded. The case is made that Shoemaker’s objections against the existence of fundamental properties whose identity «consists of something logically independent of their causal potentialities» can be neutralised on the assumption that our world is operated by ontologically fundamental laws of nature in virtue of which quiddities have constant causal potentialities. Quidditism with this assumption makes it possible to know all the same properties of matter as dispositionalism, viz., dispositional properties and spatiotemporal relations. So, pace Shoemaker, it has no «disastrous epistemological consequences». Although such quidditism expands (as compared with dispositionalism) ontology by attributing matter not only with knowable dispositional properties (causal structures) but also with quiddities, which are in a sense unknowable, this ontological exuberance is justified by the need to avoid the vicious regress of powers entailed by dispositionalism.

Keywords: matter, intrinsic quality, quiddity, disposition, power, causality.

Bertrand Russell [13] drew philosophers’ attention to the fact that all that physics tells us about things are (spatial) relations, the ways things change these relations with time, and the ways things influence one another in these respects. In particular, all such physical properties as mass, electric charge, etc. are dispositions (or powers, or propensities, or liabilities) of things to influence other thing’s spatio-temporal properties (such as
acceleration) and are influenced by other things accordingly. This results in a queer situation noted by many philosophers; in Howard Robinson’s words, «modern science […] sees the basic constituents of the material world as being purely dispositional entities which are characterized solely by reference to their ability to act upon and influence things in their vicinity. […] We are presented with an ontology which is avowedly devoid of quality, containing only quantitively discernible forces, fields and energies, all of which are entities existing only as forms of disposition, power and influence» [11, p. 109, 113]. This seems very implausible if not absurd: if there is a network of relations and dispositions to change these relations, it seems that there should be something in the nodes of these relations that should have some intrinsic qualities that are not relations and dispositions. The world cannot be a matter of relations between things that are «in themselves» entirely qualitiless; there cannot be a network of relations and dispositions between a multitude of nothing. It seems that there should be fundamental intrinsic qualities of physical entities that do not reduce to spatial relations and dispositions. In contemporary philosophy, such qualities are often called by a technical term «quiddity», and the view that there are such qualities can be called «quidditism». On the other hand, if there are quiddities, it is arguable — and was argued in [6], [7], [8], [14] — that they should be unknowable and positively inconceivable (we cannot form the concept of what they are like). This diminishes the attraction of quidditism, and makes a number of philosophers favour the view that all properties eventually reduce to dispositions — the view that can be called «dispositionalism».

Another name for this view is «causal structuralism». Philip Goff describes it as a response to the Russellian worry that physics tells us only what physical entities do (the structure of causal relations) without telling us anything as to what they are (their intrinsic nature). The causal structuralist response is that all there is to physical entities just is what they do: «once you know what an electron does, you know everything there is to know about what an electron is», and the same goes for all the rest of physical entities — they are «not so much “beings” as “doings”» [4, p. 175].

In this article, we will consider some most weighty arguments for quidditism against dispositionalism (causal structuralism) and discuss the most influential defence of dispositionalism presented by Sydney Shoemaker in the article «Causality and Properties» [15].

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1 Some authors that made significant contribution in the development and defence of this approach are R. Harré, E. Madden [5], S. Shoemaker [15], A. Chakravartty [2], A. Bird [1], A. Whittle [16], S. Mumford, R. L. Anjum [10].
1. Some arguments for quidditism

The adherents of quidditism argue that fundamental physical entities should have intrinsic nature that cannot be purely dispositional. If physical entities had no qualities but powers to influence one another’s movements and liabilities to be so influenced, we would have an infinite regress that never achieves any qualitative destination. There would be only powers to influence something that have no qualities but powers to influence something that have no qualities but powers . . ., and so on ad infinitum. Howard Robinson describes this as «a vicious regress of powers» [11, p.119], and remarks:

An object cannot simply be a spatially extended capacity to effect other spatially extended capacities to effect [. . .]. An ontology of mutual influences is not an ontology at all unless the possessors of the influence possess more substantial features [12, p.179].

There may be an appropriate refinement: even if the intrinsic nature of some physical entities can be purely dispositional, this dispositionality should be with respect to something non-dispositional or, at least, achieve such non-dispositional «arrival point» after several (finite number) of dispositional intermediate links. Dispositions should eventually (directly or mediated by other dispositions) be anchored in some nondispositional, categorical intrinsic properties. So, at least some fundamental physical entities should have intrinsic nondispositional (nonrelational) nature.

Robinson points out that the dispositionalist conception of physical reality, in which every thing boils down to relations with other things, is at least empty and can hardly be coherent. He explains also that with respect to fundamental properties of matter «the Cartesian idea that it is purely geometrical will not do, for it leaves no distinction between matter and empty volumes: a filler for these volumes is required» [12, p.178].

We can make this clearer by means of a thought experiment (which is a simplification of the reasoning proposed by John Foster) [3, p.67–68]. To begin with, imagine a world that contains nothing but two particles having no other properties except location relative one another and dispositions to influence one another’s movements. Let us think: how can there be any difference between this and there being no particles at all? If the particles have no intrinsic qualities, then the picture we have is that of one nothing located a certain way relative to another nothing and changing this location. This can hardly make any sense. And obviously, things do not become essentially different if we add more such particles and attribute
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them with different dispositions to influence one another’s movements, — even if we have an infinite number of such particles!

Philip Goff [4] makes a case that dispositionalism/causal structuralism is incoherent because the mere causal structure cannot even reveal (make intelligible) what matter does (what physical entities do). He explains this with «a ludicrously simple example»:

Suppose I have three matchboxes, and I tell you the first contains a «SPLURGE», the second a «BLURGE», and the third a «KURGE». You innocently ask me, «Oh really, what’s a SPLURGE?» I answer, «A SPLURGE is something that makes BLURGES». Now, you can’t really understand my answer until you know what a BLURGE is, so naturally your next question is, «Fine, so what’s a BLURGE??» I respond, «Oh, that’s easy, a BLURGE is a thing that makes KURGES». But, in a similar way, you can’t understand this answer until you know what a KURGE is, and so — starting to get a bit irritated — you now demand to know: «What on earth is a KURGE????!!» My response: «It’s something that makes SPLURGES».

You could be forgiven at this point for deciding you didn’t want anything more to do with this conversation. For although the discussion has taught you something about the abstract pattern of causal relationships that exists between SPLURGES, BLURGES, and KURGES, it has left you none the wiser about what any of them actually does. The same is true, although in a more complex way, of the description of physical reality offered by the causal structuralist [4, p.179].

Indeed, the only difference between this example and physical reality as it is represented by dispositionalism/causal structuralism is that instead of three kinds of entities (SPLURGES, BLURGES, and KURGES), there are entities of many different kinds, every one of which is claimed to be nothing but a knot in an infinitely complex network (structure) of causal relations.\(^2\) The outcome is:

If causal structuralism is true, it is logically impossible to gain understanding of what anything does and hence logically impossible to gain understanding of what anything is. If this isn’t an unintelligible view, then I don’t know what is [4, p.179].

(For some more discussion of this issue, see: [14].)

\(^2\) Epistemically, we avoid this vicious circle thanks to the fact that physical things do something not only with respect to one another, but also with respect to ourselves as mental subjects — they look, touch-feel, sound, smell, taste certain ways, and these mental effects are intrinsic mental qualities that are not causal dispositions; they are mental quiddities called *qualia*. However, ontologically to ground physical reality in *qualia* would be to opt for idealism, whereas causal structuralists/dispositionalists declare themselves materialists.
2. Sydney Shoemaker's case for dispositionalism

In the article «Causality and Properties» (1980), which is one of the most important for dispositionalism, Sydney Shoemaker advanced arguments that, if they were sound, would mean the failure of quidditism.

The questions Shoemaker puts and discusses are not exactly about the existence of quiddities. He does not ask and discuss whether there are quiddities and what properties are ontologically fundamental. Shoemaker attempts to provide a unified dispositionalist account of all properties, irrespective of whether they are ontologically fundamental or are constituted by more fundamental structures, relations and properties. He begins with the distinction between «genuine» properties, which are causally efficient, and mere-Cambridge properties (or quasi-properties) that have no causal efficiency and are either relations (the «property» to be now at a certain distance from something, the «property» to be lower than someone, etc.) or such quasi-properties as an artificial philosophical «property» of grue (from «green» and «blue», the quasi-property defined as «green up to 2000 A.D. or blue after 2000 A.D.»). The theory advanced by Shoemaker is that the identities of all «genuine» properties consist of their causal potentialities. In other words, all «genuine» properties are sets of conditional dispositions (dispositions of an object to effect and suffer certain causal influences under certain conditions).

Accordingly, Shoemaker argues against the supposition «that the identity of properties consists of something logically independent of their causal potentialities» [15, p.116]. The very statement of the question — whether the identity of properties consists of something logically independent of their causal potentialities or not — is misleading in that it assumes right away that there should be a unified account of the identity of all properties. Obviously, the quidditist, who admits the existence of both dispositional properties and quiddities, should reject this assumption. If we admit the existence of quiddities, the question about the identity of properties gets the obvious, tautological answer: the very meaning of the concepts of dispositional properties and quiddities implies that the identity of the former is logically dependent whereas the identity of the latter is logically independent of causal potentialities.\(^3\)

\(^3\) However, this tautological answer with respect to dispositional properties has in the quidditistic context a rather different meaning than in the dispositionalist context: dispositions should be directly or indirectly anchored in quiddities, and the identity of a dispositional property involves reference to those quiddities in which it is directly or indirectly anchored. The disposition to influence in a certain way objects that have a
Thus, the real issue is whether quiddities exist.

Shoemaker attempts to show that the supposition that the identity consists not of causal potentialities (taking into account the point that I have made in the previous paragraph, it would be appropriate to reformulate this: the supposition of the existence of properties, whose identity consists not of causal potentialities, that is, of the existence of quiddities) has «disastrous epistemological consequences» [15, p.120]. If this supposition is true, there are a number of possibilities that seem unacceptable: the existence of properties that have no causal potentialities; the existence of several different properties having the same causal potentialities; a radical change of the properties of a thing without any changes in its causal potentialities; and a radical change of the causal potentialities of a thing without any changes in its properties. Because for any pair of things it is true that these things can have any number of common or different properties that have no causal potentialities, and it is impossible for us to know about these causally impotent properties, «nothing could be good evidence that the overall resemblance between two things is greater than the overall resemblance between two other things». Because several different properties can have the same causal potentialities, «it is impossible for us even to know (or have any reason for believing) that two things resemble one another by sharing a single property». Because properties and causal potentialities are mutually independent, they can change with time independently of each other, so «it is impossible for us to know that something has retained a property over time, or that something has undergone a change with respect to the properties that underlie its causal powers» [15, p.116–117].

I think that the quidditist can give a satisfactory reply to this argument. The reply that I will offer involves several points, two of which Shoemaker discussed in his paper. However, he discussed them in isolation from one another and in such an order that his objections are likely to look more plausible and weighty than they really are. I will first formulate the reply as a whole, and then discuss Shoemaker’s objections against two of its key components. I suggest that the quidditist’s reply should be that although the possibilities listed by Shoemaker are not logically excluded, this has no important epistemological consequences (not to mention «disastrous epistemological consequences») besides the already admitted incognizability of quiddities as «things in themselves».

certain quality-quiddity (A) and the disposition to influence in the same way objects that have another quality-quiddity (B) are two different dispositions.
First, the perspective of quidditism leaves open the same possibilities of knowledge about the world, its objects, properties and laws of nature as the perspective of dispositionalism: all that concerns spatial properties and relations, their changes with time, the laws of nature that govern these changes, the dispositional properties that correspond to these laws, etc. And with respect to all such properties, we can know about «the overall resemblance» and other such things, from the point of view of quidditism, all the same, and on the basis of all the same evidences, as from the point of view of dispositionalism. The difference is only that the quidditist (on weighty reasons, it seems) recognizes that reality is not exhausted by this but contains yet other (ontologically more fundamental) properties, which are incognizable. Shoemaker’s reasonings about «the overall resemblance» and possible skeptical scenarios concern only such properties-quiddities; therefore, even if we entirely agree with these reasonings, this should not discourage or surprise anybody, given that we have already admitted the incognizability of quiddities.

Second, we have the same reasons to deflect Shoemaker’s scenarios as in cases of many other well-known skeptical scenarios. Various skeptical scenarios are logically possible — and have been known for a long time, since the time of ancient philosophers-skeptics — not only with respect to quiddities but also with respect to spatio-temporal and dispositional properties, laws of nature, etc., — all those things that we usually consider as cognizable and about which science, apparently, successfully acquires ever more knowledge. David Hume is especially famous for skeptical arguments that prove that «nothing could be good evidence» with respect to almost everything that we are used to consider as known and knowable. It is impossible to logically exclude various skeptical scenarios on which all our purported knowledge of reality (in particular, scientific knowledge) fails to correspond to reality how it really is; such logically possible skeptical scenarios are infinitely many, and it is impossible even to show that their probability, in the objective sense of the probability calculus, is low. We would do well to listen to G. Madell’s remark:

We surely ought to have learnt that there is no such thing as «the refutation of skepticism». What should govern our thinking here are two principles: first, Occam’s razor, which demands in this case that it is illegitimate to posit a number of entities (spaces, etc.) when the requisite explanatory work is effected by positing only one, and second, the inference to the best explanation [9, p. 309].

This guidance is applicable to quiddities (of course, not as a matter of learning what they are «in themselves» but as a matter of identifying
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them according to the causal roles that they implement in virtue of the laws of nature that operate in our world) and to the possible skeptical scenarios offered by Shoemaker in the same way as to other skeptical scenarios. To begin with, because quidditism assumes that there are fundamental laws of nature that impart quiddities with causal powers and that these laws are constant, immutable, this excludes, or restricts to epistemologically harmless options, the possibility that «the properties and causal potentialities can vary independently of one another». Next, we can cut away with Occam’s razor all those scenarios that multiply quiddities or changes of quiddities and associated laws of nature without need, and leave only the most economical scenario, according to which each quiddity implements certain constant causal roles in virtue of immutable laws of nature, and there is no duplication of roles by different quiddities.

Just as in all other fields of knowledge, we cannot logically exclude the possibility of skeptical scenarios but can invent theories (hypotheses) that, in comparison with known alternatives, have the greatest explanatory force and are the most economical. We have no guarantees (even probabilistic, in the objective sense of the probability calculus) that reality is such as it is represented by our best theories (hypotheses) rather than such as represented by some of the multitude of logically possible skeptical scenarios. We can only hope for this. As Karl Popper vigorously argued, the only kind of knowledge we can have is hypothetical knowledge without any guarantees of truth or high probability — hypotheses that, as far as we can judge in the light of available evidences and arguments, are the best among the alternatives we know about. And we, as rationalists, should hope (but have no guarantees) that the search for and critical selection of such hypotheses eventually gets us nearer to the truth.

Shoemaker discusses two key components of this reply.

(1) He discusses the possible reply that (some) properties have causal potentialities contingently, but we have weighty theoretical reasons to hold that in fact, different properties have different causal potentialities, and these potentialities do not change with time. This hypothesis is the simplest among the hypotheses that agree with available (and possible) evidence, so it is reasonable to accept it, despite the logical possibility of other (skeptical) scenarios [15, p. 117–118]. Shoemaker objects that such an appeal to theoretical simplicity is «extremely questionable», because «here we are not really dealing with an explanatory hypothesis at all»: if the identity of properties is independent of their causal potentialities, then the identity or difference of properties cannot explain the identity or difference of causal potentialities. «[The] disassociation of property identity from
identity of causal potentiality is really an invitation to eliminate reference to properties from our explanatory hypotheses altogether» [15, p. 118].

This objection would be right if not for the fact that quidditism can explain the permanent correspondence between quiddities and causal dispositions by the supposition that our world is operated by ontologically fundamental laws of nature in virtue of which quiddities have constant causal potentialities. Admittedly, without such a supposition, quidditism would be a non-starter. However, if we take into account the necessity of this supposition for quidditism, Shoemaker’s objection loses force.

(2) Shoemaker envisages the possibility of a similar reply, namely, that «[t]he immutability of properties with respect to their causal potentialities [...] is simply a consequence of the immutability of laws», and that although the laws that determine the causal potentialities of properties do not change with time, it does not follow from this «that the property cannot be governed by different laws in different possible worlds» [15, p. 118–119]. Shoemaker’s counter-reply has three steps.

First, he remarks that this answer concedes a large and central part of his conception, namely, that «genuine» properties differ from mere-Cambridge properties in that they «are law-governed in a way that makes their causal potentialities immutable» [15, p. 119]. However, this remark overlooks an essential difference between dispositionalism and quidditism (which has to do with the distinction between dispositional properties and quiddities rather than between «genuine» and mere-Cambridge properties), namely, from the point of view of dispositionalism, dispositional properties are ontologically self-sufficient, they are not grounded (through laws of nature) on non-dispositional properties, and they are not governed by laws of nature (the laws of nature are ontologically derivative from dispositional properties; they are already contained in the set of dispositional properties, are logically supervenient upon this set); whereas from the point of view of quidditism, the dispositional properties are ontologically derivative from (logically supervenient upon) quiddities, spatial relations and fundamental laws of nature.

Second, Shoemaker suggests that there is «a prima facie case for saying that the immutability of the causal potentialities of a property does imply their essentiality; or in other words, that if they cannot vary across time, they also cannot vary across possible worlds». This prima facie case is that with particulars, «[t]here is [...] a close linkage between identity across time and identity across possible worlds; the ways in which a given thing can be different in different possible worlds depend on the ways in which such a thing can be different at different times in the actual world» [15,
p. 119]. To this, the quidditist can object that even if such a close linkage is there in the case of particulars (things), there is no weighty reason to extend, and there is weighty reason not to extend this on the case of the connection between quiddities and dispositional properties. Particular things are not linked with their properties by immutable laws of nature; rather, it is a matter of our concepts of things of various kinds that for a thing of a certain kind, retaining some properties (called «essential») is considered as a necessary condition of the thing’s retaining its identity. However, in the quidditist perspective, there is no such conceptual tie between quiddities and dispositions — they are connected not conceptually but naturally, by the laws of nature that operate in a world. By definition, laws of nature are immutable (cannot change with time in a world, actual or possible); however, they can vary between possible worlds. Hence, the links between quiddities and dispositions cannot change with time but they would be different if the laws of nature were different; in other words, they differ between logically possible worlds with different laws of nature.

Shoemaker suggests that the considerations he adduces at least «call into question the intelligibility of the suggestion that the very properties we designate with words like “green”, “square”, “hard”, and so on, might have had different causal potentialities than they in fact have» [15, p. 119–120]. The quidditist can agree that this is really so with respect to such words as «green» and «hard»; however, this has no bearing on the issue, because these words mean dispositional properties rather than quiddities. (As for the word «square», the quidditist would hold that the property it signifies belongs to a third category — that of spatial properties.)

Third, Shoemaker admits that his last argument (a prima facie case for the view that if the causal potentialities of a property cannot vary across time, they also cannot vary across possible worlds) is not conclusive; however, he claims that his «earlier arguments, if sound, establish that there is an intimate connection between the identity of a property and its causal potentialities» [15, p. 120]. However, our foregoing discussion of these arguments indicates another conclusion: all that they establish is the tautology that the identity of dispositional properties consists of causal potentialities; and these arguments provide no weighty reason to deny the existence of properties of another kind, quiddities, such that their identity does not consist of causal potentialities. Although we (hypothetically) identify these properties-quiddities according to those dispositional properties that they ground in virtue of the laws of nature that operate in the actual world, their identity does not consist of these dispositional properties: if the laws of nature were different, the same
quiddities would ground different dispositional properties. Or, to say the same in terms of logically possible worlds, the same properties-quiddities ground different causal potentialities in possible worlds with different laws of nature.

So, we can conclude that quidditism has sufficient resources to neutralise Shoemaker’s objections against the existence of fundamental properties whose identity «consists of something logically independent of their causal potentialities» (that is, quiddities). The quidditist response to these objections should be based on the assumption that our world is operated by ontologically fundamental laws of nature in virtue of which quiddities have constant causal potentialities. Quidditism with this assumption makes it possible to know all the same properties of matter as dispositionalism, viz., dispositional properties. So, pace Shoemaker, it has no «disastrous epistemological consequences». Although such quidditism expands (as compared with dispositionalism) ontology by attributing matter not only with knowable dispositional properties (causal structures) but also with quiddities, which are in a sense unknowable, this ontological exuberance is justified by the need to avoid the vicious regress of powers entailed by dispositionalism.

References


Чи має матерія недиспозиційні внутрішні властивості?
Сідні Шумейкер проти квідитизму
Дмитро Сепетий

Анотація. У статті обговорюється проблема існування фундаментальних не диспозиційних внутрішніх якостей матерії (квідитів) та аргументи стосовно двох протилежних поглядів з цього питання, квідитизму та диспозиціоналізму (каузального структуралізму). Резюмовано аргументацію на користь квідитизму Говарда Робінсона, Джона Фостера та Філіпа Гофа, яка висвітлює суперечливість або незбагненість доктрини про те, що вся реальність є лише мережею каузальних відношень без будь-якого якісного наповнення у вузлах мережі. Проаналізовано впливовий аргумент Сідні Шумейкера (зі статті «Кавзальність та властивості») на користь диспозиціоналізму, і запропоновано відповідь на нього. Обґрунтовано думку, що заперечення Шумейкера проти існування фундаментальних властивостей, чия ідентичність «полягає в чомусь логічно незалежному від їхніх каузальних потенції», можуть бути нейтрапізовані на основі припущення, що в нашому світі діють онтологічно фундаментальні закони природи, які наділяють квідити постійними каузальними потенціями. Квідитизм, що включає це припущення, уможливлює пізнання усіх самих властивостей, що й диспозиціоналізм, а саме, диспозиційних властивостей та просторово-часових відношень. Тож, відповідно до ствердження Шумейкера, він не має «катастрофічних епістемологічних наслідків». Хоча такий квідитизм розширює (порівняно з диспозиціоналізмом) онтологію через наділення матерії не лише пізнаваними диспозиційними властивостями (каузальними структурами), але також і квідитами, які є в певному сенсі непізнаваними, таке онтологічне збільшення виправдоване потребою уникнення порочного регресу спроможності, що його породжує диспозиціоналізм.

Ключові слова: матерія, внутрішня якість, квідит, диспозиція, спроможність, каузальність.

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Сепетий Дмитро Петрович
Кафедра суспільних дисциплін
Запорізький державний медичний університет
просп. Маяковського, 26
м. Запоріжжя
69035

Sepetyi Dmytro
Department of Social Studies
Zaporizhzhia State Medical University
Maiakovskiyi Ave., 26
Zaporizhzhia
69035

@ https://orcid.org/0000-0003-2110-3044
@dsepetij@ukr.net
@ https://doi.org/10.31812/apm.7680