

## Realist Natural Kinds: Mind-(in)dependence and Interest Relativity

### Abstract

Many accounts of natural kinds claim to be realist without specifying more closely what their realism amounts to. Typically, mind-independence is taken as a criterion that groupings must fulfil to be considered natural. However, some authors (Khalidi 2013; Magnus 2012) argue that we should drop mind-independence as a criterion for realism about kinds and spell out the difference between realist and anti-realist views in different terms. *First*, I argue that some of their worries regarding the adequacy of mind-independence criterion arise from an ambiguity in what is meant by the term ‘realism’. *Second*, I investigate a possibility that a resistance to the mind-independence criterion derives from the tendency to identify natural kinds with categories that appear in our scientific research. Categories stemming from scientific theories are interest-relative, which seems to go against their being mind-independent, but, at the same time, this does not mean that they do not track real features of the world. I argue that, while the reason we pick out certain kinds as natural will depend on our interests, what makes those kinds natural still must be mind-independent. I outline the *abundance view*, a realist strategy compatible with the interest relativity of natural kinds, which holds that our scientific categories pick out a subset of many patterns in the world all corresponding to natural kinds. I contend that prominent accounts that subscribe to interest-relativity of natural kinds and claim to be realist, such as promiscuous realism (Dupré 1993) and domain-dependent realism (Magnus 2012), can be interpreted as variations of the abundance view.

**Keywords:** Natural kinds, realism, the naturalness criterion, mind-independence, interest relativity

## 1. Introduction

When we think about the categorization of the world into kinds there seems to be infinitely many ways of drawing boundaries between different entities. Nevertheless, we take some of them to be superior to others. Some categories might be entirely arbitrary like the category comprising my nose and the Eiffel tower (Putnam, 2004, p. 36), while others might not be so arbitrary but are uninteresting, such as the category comprising all white things (Mill, 1884). Furthermore, there are those that are of scientific interest because they play an important role in explanations and predictions; for instance, categories related to chemical elements or biological species. In this regard an important question is, what makes scientific kinds superior to other types of groupings, such as folk categorizations, for example. What are the criteria for judging that some kinds are genuine while others are not?

This debate has been conducted in terms of the question of naturalness of kinds (Campbell, O'Rourke, and Slater 2011). Standardly, the realist has the upper hand with regards to this issue because she claims that a kind is natural when it reflects *real* divisions in nature. Recently, however, an issue has been raised as to the proper characterization of the realist position. In particular, there seems to be a disagreement, about what constitutes an objective criterion for drawing such boundaries, because it seems that the supposed natural divisions are not 'out there' in nature to be discovered in the same way as the entities classified along the lines of those divisions (Varzi, 2011).

Traditionally, realism about natural kinds has been construed as the view that natural kinds are grounded on objective and mind-independent facts. This view has been recently elaborated by Laura Franklin-Hall (2015). The idea is that, minimally, the realist must assume that the objectivity of natural kinds involves groupings that do not depend on us, our cognitive capacities, interests, and aims. The existence of such groupings then accounts for the success of scientific categories. In fact, the realist might argue that 'proper' scientific categories are

successful exactly because they track natural groupings. The problem for the realist is to spell out in more detail how can we have access to the mind-independent facts that determine which kinds are natural and which are not.

Anti-realism, alternatively, holds that we judge such criteria to be correct or incorrect relative to our cognitive capacities, conceptual schemes, and/or interests. Thus, in the realism/anti-realism debates, anti-realists sacrifice mind-independence for access to facts regarding naturalness of categorizations by endorsing a weaker standard according to which criteria such as non-arbitrariness, non-subjectivity, and importance for scientific research can count as relevant conditions (see Slater & Borghini, 2011).

There has been some opposition to this way of characterizing the realist and anti-realist views regarding natural kinds. Some authors argue that one can be a realist about natural kinds and reject mind-independence as a criterion for what makes a kind natural (Khalidi 2016, 2013; Magnus 2012). I maintain that some of their worries regarding the adequacy of mind-independence criterion stem from an ambiguity in what is meant by the term ‘realism’. This can be gathered from their claims that such a criterion would automatically exclude psychological, social or synthetic chemical kinds, because they are not mind-independent. Thus, in Section 2, I elaborate on the thesis of natural kind realism and argue that to assert that a certain kind is real can imply two different claims: (1) that entities comprising the kind exist mind-independently; and (2) that some categorizations of the entities in the world are correct in virtue of mind-independent facts. I argue that natural kind realism is concerned with claim (2). My aim is to show that Khalidi’s and Magnus’ objections to the mind-independence criterion miss the target, because they have not shown that claim (2) is an inadequate characterization of realism; rather their arguments might be more plausibly construed as directed against claim (1).

There is a more compelling reason to discard the mind-independence criterion for realism about natural kinds. It stems from the view that natural kinds are interest-relative; however, this

does not preclude one to be a realist about them. In section 3, I reconstruct the *interest-relativity argument* aimed at defeating the mind-independence criterion for realism about natural kinds. Then, I show that the realist views that identify our successful scientific classifications with natural kinds face a challenge irrespective of whether they are committed to the mind-independence criterion. Since the contours of scientific classifications are always to an extent influenced by the contingent features of scientists (including their interests) and scientific practices, so will be the categories developed. The question is, then, what justifies us in claiming that such categories track some real divisions or patterns in the nature.

I distinguish between two main opposed realist strategies for tackling this issue. The first strategy, which I title the *convergence realist view*, holds that natural kinds are categories we would converge upon *regardless* of norms and aims we start with. On this view, it can be expected that only a small subset of our scientific categories will in fact correspond to natural kinds. This view, however, cannot be invoked if we wish to subscribe to interest-relativity of natural kinds and respond to the abovementioned argument. The second strategy, which I title the *abundance realist view*, is more suitable for those who wish to accommodate the interest-relativity of natural kinds and maintain a realist view. It holds that, depending on our interests, our scientific categories pick out a subset of many patterns in the world which all correspond to natural kinds. On this view, our scientific categories correspond to natural kinds, but they represent only a subset of all the natural kinds out there.

In Section 4, I show that promiscuous realism (Dupré 1993) and domain-dependent realism (Magnus 2012), two prominent accounts that emphasize the importance of our interests in picking out natural kinds, can be understood as variants of the abundance view. To count as realist, the proponents of these accounts must argue that it is not our interests that fix which kinds are natural. That is, if natural kinds track some real patterns in nature, then it is likely that some other patterns tracked by agents with very different interests would be equally real. This

makes the set of natural kinds much larger than the set of categories fixed by our interests. While this is relatively straightforward for promiscuous realism, domain-dependent realism is more problematic because according to it kinds are natural only within the bounds of a domain, which might seem to go against the abundance view. Finally, I argue that, to be a realist view, the domain-dependent account must allow that there are natural kinds not only within domains that interest us, but in innumerable many other possible domains, not investigated by our current scientific disciplines, which makes it an instance of the abundance view. I conclude that, on realist views, interests can play a role in picking out natural kinds, but the criterion of what makes them natural cannot be interest- or mind-dependent.

## **2. Mind-Independence as a Criterion for Realism About Natural Kinds: What Exists Mind-Independently?**

I begin with the standard definition according to which a realist about P holds that: 1) P exists, and 2) P exists mind-independently. These are called the *existence* and *independence* dimensions of the general doctrine of realism (Devitt 2008). A natural kind realist, then, is committed to the claim that the world is structured in such a way that certain ways of classifying it (or carving it up) are correct solely in virtue of that structure, and not in virtue of some facts about us, the categorizers (Franklin-Hall 2015). Our classificatory practices, scientific theories, conceptual schemes or interests<sup>1</sup> can be more or less successful in picking out this structure, but they in no way influence whether the categories we use really do correspond to some mind-independent groupings in nature. This does not imply that mind-dependent entities such as

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<sup>1</sup> In what follows I will, for the sake of brevity, refer only to our interests and potential interest-relativity of natural kinds, but this does not mean that I do not take into consideration that our conceptual schemes and cognitive capacities also influence our classificatory practices. In fact, they also partly determine what interests we will have.

mental states or human made substances cannot be natural kinds, rather, the criterion for classifying them together into a natural kind should obtain in virtue of mind-independent facts.

As mentioned in the introduction, this way of framing the debate was recently expounded by Franklin-Hall. She defines the realist view as holding that “*there are at least some mind-independent facts or truths about which kinds are natural and which are not*” (Franklin-Hall, 2015, p. 927). Antirealism, on the other hand, is defined as holding that the criteria for preferring certain categories or classifications (i.e. criteria for which kinds are natural) are relative to our aims, concepts or cognitive capacities. This does not necessarily mean that such criteria depend solely on us, and that the world does not constrain our classifications in any way.<sup>2</sup> What an antirealist denies is the claim that the facts concerning kinds’ naturalness must be *fully* mind-independent.<sup>3</sup>

However, some authors have objected to this way of characterizing realism and antirealism about natural kinds. P.D. Magnus (2012) and Muhammad Khalidi (2013, 2016) object to defining natural kind realism in terms of mind-independence because this supposedly leaves out all categorizations which are in some sense human or mind-dependent. For instance, Magnus states that “[a] realist about dogs and cars should admit without blushing that Weimaraners and 1969 Plymouth Valiants are as they are because of human action (...)”

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<sup>2</sup> Only the most extreme version of antirealism, which is sometimes labeled strong conventionalism, would exemplify this view. For a review of theories of natural kinds, see Anonymous).

<sup>3</sup> This way of distinguishing between realist and antirealist positions is standard in other branches of philosophy. In philosophy of mathematics, realists about mathematical objects or structures are those who think that they exist independently of there being any rational creatures who can perform mathematical operations (Linnebo 2018). Even more to the point, in metaethics, Russ Shafer-Landau characterizes moral realists as holding that the criteria “that fix the moral facts are not made true by virtue of their ratification from within any given actual or hypothetical perspective” (Shafer-Landau 2003).

(Magnus, 2012, p. 104). Furthermore, Khalidi (2013, p. 143) claims that the mind-independence desideratum would exclude all mental or psychological kinds that depend on the human mind, such as Alzheimer's disease, as non-real or non-natural.

Their objections, however, rest on an ambiguity in how we use the term 'realism'. There are at least two possible ways of interpreting the claim about the existence of certain entities. It appears that often when we say that entities exist we presuppose that they exist as such and such (as specified by our theory about them or by a kind into which we have classified them). For instance, the claim that electrons exist, can be interpreted both as saying that there are some entities with certain properties (as described by a scientific theory) and as a stronger claim that there is an objective, mind-independent criterion determining how to categorize those entities into the kind electron.<sup>4</sup> These two readings should be kept apart. The importance of distinguishing between these two readings can be illustrated with the concept of race. When someone claims that races are not real, or that there are no races, it is not meant that individuals identified as belonging to a particular race do not exist. Rather, the idea is that such grouping is not satisfactory, i.e. it does not fulfil certain criteria to be considered a well-established grouping (see, for instance, Appiah 1996).

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<sup>4</sup> This ambiguity appears to be more pronounced with unobservable entities. When we lack some independent source for identifying the entities in question (such as common-sense criteria that objects are spatio-temporally connected and distinct from other objects), part of the claim regarding the existence presupposes that something under the description of a certain kind or category exists. However, this entanglement of the individuation criterion of unobservable entities with theory (and categorization that follows from it) does not mean that we cannot talk about the existence of an entity if we cannot be sure which category it belongs to. That is, we can imagine that certain, let us say subatomic particles have been detected but that scientists were wrong in the way they described them and with regards to the category they belong to (Putnam 1975).

If we should distinguish between entities and ways of classifying them then we should not conflate the ontological status of those entities with the ontological status of the criteria by which they are classified. In other words, we should not conflate realism about kinds and realism about entities falling under those kinds. Thus, a realist about natural kinds will maintain that the mind-independence criterion applies to the former and not necessarily to the latter. For instance, a natural kind realist in this sense can agree that a Plymouth Valiant exists mind-dependently, at least in the sense that its existence causally depends on human activity (for a review of notions of mind-dependence, see Khalidi 2016). She can also agree that Alzheimer's disease is mind-dependent, in the sense that it constitutively depends on human minds. But she will maintain that it is a separate question whether cars and diseases are natural kinds. In fact, if the criterion for grouping them is mind-independent then she can consider them to be natural kinds.

Khalidi (2016) has more recently offered a more elaborate criticism of the mind-independence as a criterion for realism about natural kinds. He examines whether distinguishing between mind-independence of a kind vs the mind-independence of its instances can help us in distinguishing between real and non-real kinds and concludes that the answer is no (Khalidi 2016). He examines whether we can formulate a distinction between different real or natural kinds from non-real kinds. His strategy is to examine whether the distinction between mind-independence of kinds vs instances can provide a basis for separating artificial or synthetic kinds such as roentgenium or dogs (because they were artificially selected or created) from social or psychological kinds, which are taken by many as not real.

There are at least two problems with this way of framing the issue. *First*, Khalidi's insistence on distinguishing real from non-real kinds appears to sidestep the real issue between realism and antirealism about natural kinds. It is perfectly possible that the realist and the antirealist agree about which kinds are natural. The disagreement consists in specifying what



makes them natural. That is, does the criterion for kinds' naturalness hold in virtue of mind-independent facts, or, is it at least partly a matter of our interests, aims, cognitive capacities, etc. *Second*, Khalidi begs the question against those who construe realism as involving mind-independence when presuming that the social or psychological kinds will end up non-real according to such accounts of natural kinds. In fact, some authors he argues against, who frame natural kind realism in terms of mind-independence, do not necessarily endorse such a distinction, arguing that one can be a realist about psychological or social kinds even though they causally or constitutively depend on human minds (Franklin-Hall 2015). This position is coherent exactly because realism about natural kinds refers to the mind-independence of facts that determine the naturalness of categories, and not to the ontological status of entities we classify.

Nonetheless, I will examine his argument against the idea that the distinction between mind-independence of kinds vs kind instances can be of help in clearing up the debate on realism about natural kinds. He argues as follows:

Whether one is a nominalist or a realist about natural kinds, one can make a distinction between the existence of a kind and that of its members. If one is a realist, then the kind exists as an immanent or transcendent universal, and the kind might be said to exist as an abstract entity whether it is instantiated or not. If one is a nominalist, then the existence of the kind may consist in the existence of an objective relation that would unify members of that kind, whether or not they actually exist and stand in that relation to one another. Either way, a chemical compound may be said to exist whether or not it has actually been synthesized and a biological species might be said to exist regardless of whether it has evolved or been selected. (Khalidi 2016, p. 228)

Beyond this quotation, Khalidi (2016) does not specify what he means by immanent or transcendent universals, or by nominalism about universals. From what could be read here, it seems that his characterization of these positions illegitimately limits the options that are at disposal to a realist about natural kinds who endorses the mind-independence criterion. Let me explain.

Khalidi's argument assumes that, no matter if one is a realist or nominalist about universals, a kind exists regardless whether its instances exist. This has a possibly problematic consequence that we cannot exclude psychological or social kinds from the set of real or natural kinds. If we wish to say that psychological kinds can exist without being instantiated this makes their existence objective and mind-independent. This means that they would exist even if no minds were to exist. In that case both kinds as universals and their instances would be mind-independent. Hence, the distinction between mind-independence of kinds and instances does not do any explanatory work in distinguishing psychological or social kinds from natural (real) kinds.

There are two problems with Khalidi's strategy. First is the already mentioned issue that the realist does not necessarily want to exclude psychological or social kinds from the set of natural kinds. Second, even if a realist wishes to endorse such a strategy, Khalidi's conclusion still does not follow. Khalidi does not substantiate the claim that kinds exist regardless of whether they are instantiated or not. In fact, normally, immanent views of universals differ from transcendent views in their commitment that there are no uninstantiated universals (see, for instance, Armstrong 1989). Similarly, nominalists, if we accept Khalidi's characterization of their view, can hold that there are no uninstantiated objective relations and that some objective relation unifying members of a kind exist only in cases where its relata exist. On such views, there is no problem in holding that members of a kind exist mind-dependently, but what makes the kind natural depends on mind-independent facts. For instance, members of psychological kinds are mind-dependent, but whether the kind itself is mind-dependent or independent is a matter of dispute between the realist and antirealist. Thus, only a small subset of realists are threatened by Khalidi's objection, the ones that argue that natural kinds exist even if they are not instantiated and that psychological or social kinds are not natural kinds.

There is, however, another, potentially more significant reason for reconsidering the mind-independence criterion for natural kinds. If one wishes to endorse the view that natural kinds are interest-relative, and still hold a realist view, it might appear that she must discard the mind-independence restriction. In what follows, I examine whether this is a plausible strategy for developing a realist view without mind-independence.

### **3. Realism, Interest-Relativity of Natural Kinds and Mind-Independence**

The tendency to identify natural kinds with categories that are successfully used in scientific research, or at least with a subset of such categories,<sup>5</sup> can potentially lead to the view that natural kinds are interest-relative. For instance, Magnus starts out with the following definition of natural kinds: “A natural kind is a category that scientists are forced to posit in order to be scientifically successful in their domain of enquiry” (Magnus 2012). Scientific investigation of the world is always, at least partly constrained by our interests, and so will be the categories we develop through it. For instance, Richard Rorty (1999, p. xxvi) raises the point that we can assume that a language-using ant or amoeba would not arrive at the same categorizations as we would. Or, as expounded by Franklin-Hall (2015), the contours of scientific classifications are always to a certain degree influenced by the contingent features of the scientists themselves. Some of those features will surely be categorizers’ explanatory and predictive priorities. Since different domains of individuals display numerous patterns which might be objects of scientific investigation, it is bound that some of them will be selected over others for their explanatory and predictive purposes.

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<sup>5</sup> I stress here that we might be interested in identifying natural kinds with a subset of our scientific categories because it is plausible to assume that some of our current scientific categories will be refined or replaced by alternative ones with further development of science.

I will here try to reconstruct how some of the claims regarding interest relativity can be interpreted as favoring realism which does not subscribe to the mind-independence criterion. A possible argument might be formulated as follows:

- 1) Our scientific categories, at least some of which correspond to natural kinds, are interest-relative. That is, we pick out such categories because they serve our interests.
- 2) Categories picked out because they serve our interests cannot be mind-independent because not only features about the world, but also features about us (our interests) are responsible for why we have chosen exactly those, and not some other categories.
- 3) This, however, does not mean that such categories do not pick out real features of the world, which is a realist thesis.
- 4) Hence, from 2) and 3) it follows that one can be a realist without subscribing to the mind-independence criterion. Accordingly, the realist can claim that both features about us and the features of the world jointly determine natural kinds.

The most important issue with regards to this argument is to clarify what does “picking out the real features of the world” mean exactly, because this seems to be the thrust of this mind-dependent realist thesis. The realist, generally, must provide a criterion that allows us to establish that our scientific categories track real patterns in the universe. This is how Franklin-Hall formulates the challenge for the realist:

Presuming that all individuals in our universe differ from one another in some of their features, grouping such individuals into non-singleton kinds requires the categorizer to have somehow selected between these features, foregrounding some combinations of them and back-grounding others. (...) More specifically, in the face of innumerable patterns displayed by a given domain of individuals, any of which might be subject to scrutiny, scientists select some patterns over others as the focus of their predictions and explanations. (Franklin-Hall 2015, p. 937)

In other words, the realist must explain why it is justified to hold that the patterns that our categories track are real features of the world while other possible patterns that might be tracked but are of no interest to us, do not. I take it that the realist has two strategies in responding to Franklin-Hall's challenge: one that relies on the mind-independence criterion and holds that evidence that the patterns picked out correspond to real divisions in nature consists in the fact that agents with very diverse interests will converge upon the same categories. I call this strategy *the convergence view* because it holds that natural kinds correspond to categories which are successful *regardless* of norms and aims of the discipline or the scientist.

In this respect, for instance, Matthew Slater states that “[p]erhaps there are some clusters of properties such that no matter *how* a discipline adjusted its norms and aims (...), the category they cluster described would be fit to play a robust epistemic role in the discipline” (Slater, 2014, p. 406). Essentialism can be taken as an instance of the convergence view. Essentialism is the view that natural kinds have essences which are supposed to be a privileged type of properties that cause and explain all other properties associated with members of a kind (see Nanay 2011). The fact that we can identify essences of certain kinds, is a fact about the world that makes essentialist categories especially successful and what ensures that rational agents with very diverse range of interests are bound to end up with classifications into essentialist kinds. Thus, we can expect that rational agents will recognize them regardless of the interests they start with.<sup>6</sup> I will not further discuss this strategy because it explicitly relies on the mind-

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<sup>6</sup> Proponents of essentialism do not usually invoke convergence as indication that essentialist kinds track real divisions in the nature, because it is thought that our ability to find essences of kinds is a proof that they do indeed correspond to real divisions, but it certainly follows, on their view, that people starting with very different interest will converge upon the same essentialist categories.

independence criterion, and in the context of this paper it is interesting to examine whether there is a strategy that will be realist but without endorsing mind-independence criterion.

An alternative strategy to the convergence view is what I will call *the abundance view*. This family of views denies the presupposition of Franklin-Hall's argument that the realist must justify selecting as real some patterns among many possible ones. The abundance view presupposes that there are many patterns in nature and, accordingly, many natural groupings that track those patterns, while our scientific categories track only some of them. Khalidi (2013) seems to be endorsing such a view:

Unless we are misguidedly anthropocentric, we should not expect that the natural kinds in the universe will be captured by a manageable set of categories that can be easily enumerated by human beings, nor that they will be exhausted by the actual categories that we end up identifying. Hence, an important proviso to the realist position on natural kinds that I have been arguing for is the following: The claim that scientific categories correspond to natural kinds need not imply that all natural kinds will be successfully enumerated, even at the end of (human) inquiry. (Khalidi 2013, p. 219)

A similar view is advanced by Anjan Chakravartty (Chakravartty 2007) when he argues against the opposition between the objective, mind-independent, kinds and subjective ones that are of interest to humans. He claims that the fact that kinds pick out objective features of the world offers no prescription regarding their utility, convenience or the fact that they serve our interests (Chakravartty 2007). According to him:

There are presumably uncountable numbers of incompatible ways of grouping properties that are sociably distributed across the natural world. So long as each of these different taxonomic systems reflects this distribution, it is difficult to see how any of them could be considered non-objective. Mutually incompatible taxonomies are all objective so long as each picks out genuinely sociable collections of properties. (Chakravartty 2007, p. 176)

If we now go back to the premise 2) of the reconstructed argument, we can see what is wrong with it. While it is true that some facts about us are (partly) responsible for why we have picked out those, and not some other categories, what makes those categories natural (and the

others we might have picked out according to the abundance view) can still be mind-independent. On the abundance view, what makes kinds natural is their reflecting some real patterns in the world. However, since there are potentially innumerable many real patterns, our scientific categories will represent just a subset of all the natural kinds. On this family of views kinds are natural in virtue of mind-independent facts that are determined by the existence of real patterns in the world. Thus, invoking interest-relativity of scientific categories does not go against the mind-independence criterion for realism about natural kinds.

Here I have sketched just a bare outline of the abundance realist strategy. In the next section I will go through two more specific accounts of natural kinds: promiscuous realism and domain-dependent realism. I will argue that if they are realist proposals they should be considered as variants of the abundance view.

#### **4. The Abundance View: Promiscuous and Domain-Dependent Realism**

##### **4.1. Promiscuous Realism**

Promiscuous realism can straightforwardly be classified as a variant of the abundance view. According to this view “(...) there are many sameness relations that serve to distinguish classes of organisms in ways that are relevant to various concerns; the promiscuity derives from the fact that none of these relations is privileged” (Dupré 1981, p. 82). John Dupré, the main proponent of this view, claims that if we were to map individuals on a multidimensional quality space, we would find clusters or bumps that sometimes are entirely discrete, while in other cases there would be a continuum of individuals between peaks (Dupré 1981). Moreover, if there are discrete clusters then there is supposed to be an empty space between them in the imagined quality space. This can be interpreted as stating that we have a clear criterion at least for cases of such discrete kinds, which could also enable us to exclude some classifications as

non-natural, namely those that would group together entities that belong to such different discrete kinds.

Promiscuous realism does not seem to offer a criterion for privileging some sets of properties as relevant for grouping into natural kind categories. This can be viewed as problematic since the idea of presenting entities as grouped on a quality space presupposes that we already have some criterion of picking out relevant properties in virtue of which we group such entities. Dupré, however does not provide such a criterion, and even states that when we approach classificatory problems from a more restricted point of view many peaks will disappear while others may appear (Dupré 1981). Dupré maintains that different groupings like common sense or biological ones can be equally legitimate depending on our interests, but what makes them objective is that they correspond to some real patterns in the world; minimally, that they share at least one common property. But, if different points of view establish different categories and none of them can be taken as privileged or correct, in what sense is this a realist view? Well, the realism here amounts to the fact that at least some of the classifications are excluded in virtue of some objective features of the world, namely those that put together entities that have no properties in common. All the other ones, both the ones we do pick out, and the ones that are of no interest to us but still track some features of the world, can be considered as natural kinds.

This type of realist view, then, is in accord with the mind-independence criterion, because facts about which groupings are natural are independent of us, while what depends on us is which of the many natural groupings we will pick out to serve our purposes. On this view, kinds are not natural because they fulfil our interests, rather, they are natural in virtue of some properties in the world. Antirealist criteria such as fulfilling our interests, can be invoked to justify why we prefer some groupings over others, but this is not what makes them natural.



Thus, it is safe to assume that there are many other such groupings that do not concern us, but are natural in the same sense.

There is, however, another proposal that equates natural kinds with scientific categories or a subset of them but argues that whether a kind is natural cannot be answered *simpliciter*. Rather, kinds are natural only in relation to a domain of investigation. Since the domains are always at least partly results of our interests, this would make natural kinds interest-relative in a more substantial sense that could seriously bring into question the mind-independence criterion. I examine this proposal for domain-dependent realism in the next section.

#### 4.2. Domain-Dependent Realism

Typically, in the debate on natural kinds it is presupposed that if there are natural kinds then they are natural kinds *simpliciter*, meaning that a kind is either natural or not, without any further specification. Magnus (2012) defends the opposite view and argues that kinds are natural only relative to a domain of inquiry.<sup>7</sup> On this view, the suitability of a kind for induction and explanation depends on a scientific discipline. For instance, drawing inferences about gold, such as that it dissolves in *aqua regia*, requires relating gold to other facts about it, which, in turn, requires a great deal of knowledge of chemistry. Alternatively, if our knowledge is focused on other sources of information, such as botany or stock market, we would not be able to make any predictions about gold. Thus, gold should be considered a kind in the context of chemistry, and not in these other disciplines (Magnus 2012).

The emphasis put on the domains of investigations gives us an idea of why the kinds in question might be considered as natural although not in virtue of mind-independent facts. Namely, the domain of study, which is at least partly delineated by our interests and aims,

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<sup>7</sup> He also attributes this view to Richard Boyd (1999) because of his claim that the naturalness of a kind is discipline-relative.

constrains which kinds will be considered natural. What, then, does the realism consist in? Magnus (2012, p. 42) argues that being domain specific does not make regularities captured by natural kinds any less natural. They are not invented by scientists working within a domain, rather they are real features of relevant causal structures. We might want to formulate the realism in question as follows: once we have fixed the relevant domain, then, inside that domain, there is a correct way of classifying that domain. This provides certain objectivity to natural kinds in the domain, while not requiring interest-independence, or mind-independence. It depends on our interests (because the domains depend on them), but once we fix those interests, not just any categorizations that fulfil them will do. Even the categories that we now consider to be flawed, fulfilled our interests to a certain extent. Hence, to reach natural classifications, we ought to track real features of relevant causal structures inside the relevant domain.

Invoking the real features of relevant causal structures does have a realist ring to it. But then, why not say that even in this case, what makes the kind natural are some mind-independent facts? As already discussed, one reason that Magnus gave is based on a conflation between realism about natural kinds and realism about entities. Another reason could be that the delineation of causal structures in question is not mind-independent. An important issue here is how research domains are defined. Magnus offers two possible interpretations (Magnus 2012): (1) the domain is a range of objects and phenomena. For instance, the domain of astronomy includes stars, planets, orbits, etc. that exist in the world, and, for the most part do not depend on our investigating them; (2) domains depend on the structure of a practicing scientific discipline. This means that its boundaries are determined not only by an aspect of the world, but also by the epistemic resources of the working scientists, like observational abilities, inferential powers, methods, social organization of the scientific community and similar considerations.

Magnus (2012, p. 44) prefers the first interpretation but says that he does not have any argument for construing it in the first way rather than the second. While the second interpretation perhaps has an antirealist ring to it,<sup>8</sup> I will interpret both of them in a realist fashion since Magnus argues for a realist view of natural kinds which is compatible with domain-dependence. If facts about the causal structure within a domain are the ones that determine which kinds inside that domain are natural, it is worth asking what makes those facts domain-dependent and mind-dependent.<sup>9</sup> If we go back to the example of gold, it is true that wider knowledge in the domain of chemistry is what allows us to draw inferences concerning the kind gold. But what does it mean to say that facts about gold that ground such inferences are domain-dependent? While it might seem plausible to say that gold is a kind in chemistry but not in biology or medicine,<sup>10</sup> the facts about the causal structure of the world that allow us to say that gold is a kind, do not seem to depend on the domain of investigation in any way that would imply their mind-dependence.

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<sup>8</sup> This depends on how we interpret the claim of dependence on a practicing scientific discipline. If the claim is just that the way we draw boundaries around it are dependent on the practicing scientists then it can still be argued that the content of the domains is mind-independent while how we will draw their boundaries will depend on us.

<sup>9</sup> Remember that Magnus claims that his view is realist about natural kinds, but without endorsing the mind-independence criterion. Realism defined *via* mind-independence criterion is a claim that facts concerning kinds' naturalness have to be mind-independent, so, it follows that Magnus should deny this and argue that such facts can be mind-dependent.

<sup>10</sup> I will not enter here into a debate with Magnus whether this really is a plausible assumption, but, my impression is that facts about the atomic structure of chemical elements can play important roles across various scientific domains. Gold may very well support his intuition of domain-dependency because it does not figure prominently in many scientific domains. However, elements such as oxygen or hydrogen can be accepted as natural kinds across many domains including chemistry, biology, and medicine.

I maintain that there are two possible ways to interpret the claim about the domain dependence of facts that make kinds natural. The first is to argue in favor of an ontologically layered picture of the world, where different layers and domains are distinct and independent of each other. This, in turn, would mean that facts about which kinds are natural inside a certain domain, do hold mind-independently. Accordingly, although natural kinds would be domain-dependent, they would still be natural in virtue of mind-independent facts.

The second interpretation states that it is scientists who decide how to divide their research area into domains, so that whether something belongs to one domain or another will partly depend on their interests, epistemic resources like observational abilities, inferential powers, etc. Here I contend that the domain-dependence is facing a dilemma; either she should adopt the abundance view or her view should be construed as antirealist. As for the first horn, note, again, that researchers' interests do not make facts about the causal structure of a domain mind-dependent. Rather, we can still say that inside the domain, once we have fixed our interests, natural kinds are those categories that track the real patterns which exist there mind-independently.<sup>11</sup> It is just that, similarly to promiscuous realism, what natural kinds are most interesting to us will depend on the specific domain, which does not mean that there are not many other natural kinds picked up in other actual or potential domains of interest.

However, if the proponent of the domain-dependency insists that interests that delineate domains of investigation play a more constitutive role in what kinds are natural in the sense that the existence of a domain delimits the existence of natural kinds then this view would not

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<sup>11</sup> Here the question arises as to how the realist can be sure that classifications really do track real patterns inside a domain. Again, as in the general case, I take it that the abundance or the convergence strategy can be applied, only this time the convergence strategy presupposes that we have already fixed our interests, and then, upon investigation of a domain, scientists will converge on the correct or best classification of that domain. Magnus' strategy seems closer to the convergence view, but it is hard to tell since he does not frame his view in these terms.

plausibly be construed as realist. Because that would mean that either the causal patterns do not exist independently of the mind, or that which patterns are natural kinds depends on how we delineate different domains. On one hand, the second option looks arbitrary from an objective point of view. It faces the Franklin-Hall's challenge to justify selecting some patterns among many possible ones, not just in the context of a specific domain, but also in the context of justifying why prefer some domains over others. If somebody wishes to claim that only categorizations inside our existing domains correspond to natural kinds, this seems to go against the realist position, because there is no guarantee that only our present domains exhaust all the possible patterns in the world. On the other hand, the first option sounds idealistic in a way that is hard to square with any notion of realism worth its name. If causal patterns are somehow constitutively domain-dependent, which is in turn determined by interests that people happen to have, then it would be more proper to say that our interests construct the world and with it construct natural kinds.

## **5. Conclusion**

I examined recent attacks on the mind-independence criterion for defining realism about natural kinds by Magnus (2012) and Khalidi (2016, 2013). *First*, I argued that some of their worries regarding the adequacy of mind-independence criterion arise from an ambiguity in what is meant by the term 'realism'. *Second*, I investigated a possibility that a resistance to the mind-independence criterion derives from the fact that categories identified by our scientific investigations are interest-relative. I argued that whether the realist wants to subscribe to interest-relativity of natural kinds or not, she ought to provide a criterion for what makes our kinds natural, that is, how can we be justified in claiming that they track real patterns in the world. I identified two possible strategies for accomplishing this, the convergence view and the abundance view. I have argued that only the abundance view complies with the interest-

relativity claim and have examined promiscuous realism and domain-dependent realism as instances of it. Natural kinds that such accounts identify are not interest-relative in the proper sense, since responding to our interests is not what makes them natural, rather, it is some facts about the world. However, it follows that neither of these accounts will manage to capture all and only our successful scientific categories, rather, the set of natural kinds is much larger than that of our successful scientific categories.

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