An interactive human kind exists when the existence and nature of that kind of people depends on our classificatory practices—when there is an interaction between the kind and how we think and talk about people. Ian Hacking argues that people suffering from Multiple Personality Disorder form such a kind, since their existence as a kind depends on how doctors use that category and on patients’ awareness of it. This looks like a special case of the social construction of a kind of person. Hacking calls his view ‘nominalism’ indicating that the kinds are not real. Khalidi suggests that this verdict may spread to other apparently real or natural kinds. Thus interactive kinds look to be a threat to realism about kinds. I examine these arguments. Are interactive kinds real or not? Are any kinds real?

1 Introduction

Ian Hacking’s work on ‘interactive kinds’ has been particularly influential in aiding our understanding of the human and social sciences (Hacking 1988, 1995, 1999, 2002, 2007). Interactive kinds are thought to be a subset of what Hacking once called ‘human kinds’. They are a special subset whose nature and even existence are in certain ways dependent on the fact that we engage in acts of classification employing just these kinds. This dependence on our classificatory practices leads Hacking to regard such a position as a version of nominalism. But this is no ordinary form of nominalism; it is, he says, dynamic nominalism, reflecting an interaction between the classification and what is classified. An example of such an interaction is concerns autism. What counts as autism and what we expect of autists has changed over time. Some of this is in response to changing scientific knowledge. But in part our changing conception of autism has responded to how some autists in fact behave, in particular those who are classified or classify themselves as ‘high-functioning autists’; this behaviour is affected by the very fact of the possibility of this classification. So there is a feedback between the classification and what is classified. The character of the kinds is therefore dynamic rather than, as in most sciences, static. Hacking discusses other human kinds and classifications that exhibit this kind of interaction. For example, the average number of personalities exhibited by someone with multiple-personality disorder (MPD) increased over time as people disposed to that disorder respond to what is expected of interesting cases of that disorder. Nicholas Spanos (1996) argues that cases of MPD are socially constructed in the sense that they are brought into existence by the interaction of therapist and patient against a background of established expectations concerning the condition. Against this, other psychologists argue that MPD is a genuine condition, a response to childhood trauma, especially abuse. However, both claims could be true, in part
at least, if cases of MPD are brought about by childhood trauma, but the form that the patient’s response takes is in part responsive to the existence of the possibility of a diagnosis of MPD (or Dissociative Identity Disorder as it is now termed). Such interactions are by no means limited to cases of mental disorder, although these have been the focus of Hacking’s work. It is plausible that sexual orientation is often largely innate. Nonetheless, there is a homosexual way of being that goes beyond this and whose character at any particular time is affected by the very fact that there are terms such as ‘gay’ that denote that way of being, to which people may conform or which they may avoid, depending on how they see themselves in relation to their possibly being categorized as gay. Of course, analogous remarks can equally be made of the straight/heterosexual way of being.

Interactive kinds raise important metaphysical questions. According to Hacking, for example, they motivate what he calls ‘dynamic nominalism’. Muhammad Ali Khalidi (2010) contends that interactive kinds are not limited to human kinds: many non-human kinds demonstrate the same kind of dynamic relationship. Consequently we cannot isolate the interactive kinds, and, in effect, Khalidi argues that the nominalism of the interactive kinds threatens a broader range of kinds than previously appreciated, and hence interactive kinds are a challenge to realism about kinds in general. My aim in this paper will be to assess this challenge to realism. And in the process I shall clarify some of the detail of interactive kinds.

It will aid our discussion to locate it within a range of debates about natural kinds and realism. The very first question we may ask is whether there are natural similarities and differences in the world. If there are, then there is the possibility of using such similarities and differences as the basis of classification. We may be able to classify thus: ‘the class of things that are similar in respect $\theta$’ or ‘the class of things that are more similar in respect $\phi$ to $a$ than $b$ is’, etc. Note that there is a distinct epistemological question: can we have knowledge of these natural similarities and differences? Much of the discussion of realism about natural kinds has focussed on precisely the questions just posed. Quine’s famous paper is an example. But the existence of natural similarities and differences is not enough to give us natural kinds as normally think about kinds. Mill points out that white things do not form a kind whereas horses do. There is just too much heterogeneity among white things. To know that $a$ and $b$ have both been classified as white things tells you only that they are similar in respect of being white and little else besides. But the information that $a$ and $b$ are both horses provides a basis for inferring that they are both herbivores, they are large mammals, that if they are different sexes, then they may interbreed with a high chance of having fertile offspring, and so forth. It may be that what distinguishes a difference in natural kind from a difference in natural property is that the former is a particularly rich source of inductive associations—and so the difference is a difference in degree. Still a difference in degree is still a difference, and so according to the Millian view, focussing on ‘green’ and ‘grue’ will not suffice to answer all the important questions about kinds, and in particular not the kindhood question: what makes a natural kind a kind?

Furthermore, one may ask ontological questions. For example, let is be assumed that there is a natural kind of horses. Is there, in addition to the horses themselves, an entity the natural kind itself? The acceptance that there are natural kind differences in addition to natural property differences does not immediately commit one to the existence of a natural kind entity, and so this question is an additional question. Consequently we need to be careful regarding what we mean by ‘natural kind realism’. I think of ‘realism about Xs’ as typically a view that takes Xs to exist, e.g.
modal realism is the view that non-actual possible worlds exist, mathematical realism is the view that numbers and sets exist, scientific realism, in one incarnation, is the view that unobservable entities exist. 'Realism' in the sense of the traditional realism vs. nominalism debate is the view that universals exist. So 'natural kind realism' ought to be the view that gives a positive answer to the ontological question, are there entities that are the natural kinds. But the term seems also to be used for a positive answer to the preceding question, are there natural differences and similarities of kind? So I propose the term 'weak realism' for the positive answer to the latter question and 'strong realism' for a positive answer to the former question. Correspondingly there are two strengths of nominalism, weak nominalism which rejects strong realism and strong nominalism which rejects weak realism. When Hacking talks of 'dynamic nominalism', the nominalism he invokes is strong nominalism. It is the denial not merely that there are any entities that are the interactive kinds, but also the denial that this is a properly natural division into kinds.

In this paper, the kindhood question will not be germane. For current purposes, we can take a liberal conception of kinds, and even allow that white things form a kind. What then is a kind, for current purposes? I shall take it that there is a kind in a weak realist sense when there is a non-accidental clustering of properties, which is to say a set of properties among which there are non-accidental correlations that thereby permit induction. This we can think of as a generalization of Boyd's homeostatic property cluster view. The 'liberalness' we have adopted means that very few properties can cluster in this way and we still have a kind.

Hacking is not a strong nominalist about natural kinds in general. So the distinction between interactive kinds and natural kinds is important: we can be realists about many natural kinds but not about any interactive kinds. Conversely, if it can be shown that many uncontroversial natural kinds are really very much like interactive kinds, then this realist–nominalist barrier may be broken down, and in particular the verdict we gave to the interactive kind may be extended to the natural kinds also. This is Khalidi's (2010) argument. In response to the attack on natural kind (weak) realism made by Khalidi, I argue:

(a) that we have no especial reason to be nominalists about interactive kinds;
(b) that Khalidi is right that we are not required to draw an important metaphysical distinction between the interactive (or more narrowly interactive human kinds), but because of (a) this does not threaten other natural kinds with nominalism;
(c) that interactive kinds do put pressure on the natural kind vs. artificial kind distinction, but this is no threat to realism.

2 Interactive kinds

Khalidi gives a general account of interactive kinds. While Hacking has doubts about the feasibility of such an account, I agree with Khalidi that it is worth seeing how far we can articulate the general features that make for an interactive kind as well as ask what are the ways in which this general account might be realised in different kinds of case. The most general feature of an interactive kind is the existence of a 'looping effect' whereby the classificatory practice interacts with the world in such a way that the classificatory practice is itself changed.
However, that description of a looping effect is far too thin and as a consequence any amendment to a classificatory scheme that comes about in the normal course of science will demonstrate a looping effect. Very frequently scientists will start with a classificatory scheme which is one of the drivers of their work, find anomalies, and then revise the scheme. Proposals to remove the class *Reptilia* or alter it (to include birds) are like this.

Khalidi (2010: 339) identifies two ‘arcs’ of the loop:

In the first arc of the loop, we exert an influence on phenomena and effect some change in them; in the second arc, those phenomena go on to evolve in certain ways in response to that influence, leading us to change our conceptions.

Khalidi recognizes that this is incomplete, since it does not address effects of the classification on those not in the kind $K$. Such effects are not to be neglected. For example, individuals not in $K$ but perhaps regarding themselves in danger of being classified as $K$ may modify their behaviour in order to be more sharply distanced from $K$, say by adopting characteristic $C$. In that case the characteristic of being not-$C$ may become one of the properties associated with $K$. Kate Fox (2004) identifies just such behaviour patterns with respect to English class structures. The English, Fox tells us, are concerned not to be classified as belonging to the class they perceive as immediately below their own class and so will do what they can to emphasize that difference. The ‘genteel’ speech and behaviour of the lower-middle classes, articulated in John Betjeman’s ‘How To Get On In Society, are intended to distance them from the working classes. Consequently these characteristics will not simply be ones associated with the lower middle class but also ones that may be used to characterise the working class, by their absence. As Khalidi does point out, the looping process may iterate, perhaps indefinitely. In this case, once it is recognized that these characteristics define the borderline between the middle and working class, then aspiring members of the latter may adopt them, with a consequence that in due course they no longer provide that defining difference, while some other behaviour may be adopted by the lower middle class in order to re-establish a perceptible boundary. Hacking mentions the categories of the ‘hip’ and the ‘square’ (as much discussed by Norman Mailer in the 1950s). Once those who might be thought somewhat square but want to be hip have found out what it is to be hip, the hip have moved on, maintaining the differentiation from the square. Khalidi’s general account may be modified without difficulty to accommodate this. The range of entities subject to being classified as $K$ or not-$K$ will not include absolutely everything, but some set of entities, $R$. The looping effect occurs when there is an effect from the classificatory practice on a sufficiently large subset of $R$ such that the classificatory practice is modified in turn. That subset need not include only (or indeed any) entities that are in fact classified as $K$.

It is important to be clear about what exactly is at the node at the far end of the first arc of the loop. Khalidi talks somewhat imprecisely of ‘exerting an influence on phenomena’ or ‘individuals classified as belonging to $K$ interact with our classification’. That interaction may involve a change in the extension of $K$, or it might be that the members of $K$ acquire new properties or shed properties, or the interaction occurs for ‘some other reason’. But we can be more precise. We are considering how kinds change, and how they may even be brought into existence or made to disappear. That is to say, how can a cluster of properties change (or come to be)? Let us focus on change for simplicity—the creation or disappearance of a kind will be
a special case of change. How, then, can a cluster, $K$, that lacks property $P$ come to include $P$? There are two ways in which this might occur:

\( \alpha \) The extension of the kind $K$ changes, so that it come to include entities that possess property $P$ and/or loses entities that lack property $P$.

\( \beta \) Entities that are already members of $K$ acquire the property $P$. Likewise, entities outside $K$ may also lose property $P$.

In both cases $K$ comes to be correlated with $P$, and $P$ may as a consequence be included in the cluster that is $K$. In $\alpha$ the kind changes its extension but no entity need change its properties. In $\beta$ the extension of the kind stays fixed, but the properties of entities in the kind (or outside it) change. Actual processes of kind-change might involve both $\alpha$ and $\beta$.

Cases of $\alpha$ would include the evolution of species (without speciation): the evolution of the peppered moth shows a change of the population from being predominantly light-coloured to predominantly dark-coloured, though no actual moth made that change. Are there cases of $\alpha$ where the change comes about as a result of a Hacking-style interaction? Human, interactive cases of this sort are difficult to identify, but the changing social properties correlated with certain diseases come
close. As knowledge of the causes of diseases change and prophylactic measures become available, diseases that once might have potentially affected all members of a society later affect only the poor; they may even be banished altogether from a society and so become correlated with being 'foreign'. Cholera and tuberculosis, among many others, show this kind of pattern. The properties forming the relevant kind cluster have changed as the extension has changed to include people with different properties. What we need in order to regard these diseases as exemplifying the first arc of the looping effect is that the cause of the changed property cluster should be the classificatory practice. Perhaps one could make out such a case on the grounds that the relevant medical science could hardly have made the advances that it did without being able to classify individuals as suffering from cholera or tuberculosis. In the latter case, that argument has some weight from the fact that the shift from the terminology of phthisis and consumption to tuberculosis played a role both in the discovery of the bacillus that causes the disease and subsequent change in the epidemiology of the disease. In general we might regard the case where as a part of a wider scientific advance a classification has an effect on a kind-cluster as one instance of the first arc, albeit an instance of the weakest sort.

In contrast with α, perfectly natural cases of β are difficult to find, but interactive cases frequent. The changing properties associated with the categories 'male' and 'female' are like this. With a small minority of exceptions, the biological properties associated with 'male' and 'female' fix the extensions of those categories. Nonetheless, the existence of those categories and their social significance causes additional, non-biological properties to be correlated with 'male' and distinct non-biological properties to be correlated with 'female' so that the clusters expand to include both biological and non-biological properties. (This is consistent both with the acceptance of biological essentialism about the kinds and with the denial of essentialism.)

Note that while this takes the looping effect to be a matter of a change in the kind K and in the use of classificatory term 'K', we should include the creation and destruction of a kind as special cases. Furthermore, we should note that maintenance is a causal process, even thought there is no change—the shelf causally interacts with the books to keep them in the same position above the floor. So a looping effect should be taken to include cases where there a kind and classificatory practice persists because of looping causal forces. The case of 'male' and 'female' were for a long time like this.

For the looping effect to occur, there must be feedback, returning to the origin of the first arc, the classificatory practice. The starting node for this second arc is where the first one ends: the change in the kind-cluster. What needs to occur for the second arc to be complete and the loop to be closed? The mere change in kind-cluster itself is not enough, since that change needs to be recognized for it to have an effect on classification. Nor is recognition enough, for the knowledge that P is part of cluster K does not necessarily lead to P being used as part of the classification of things as K. For P may be epistemically less useful than other indicators of K and so will not play a part in our classificatory practices. I do not think that the association with poverty plays a role in our classificatory practice with regard to tuberculosis. The notion of 'classificatory practice' is imprecise, but I take a property P to be part of our practice for classifying things as K if and only if we do use the presence or absence of P (perhaps along with other properties) in deciding whether an individual belongs to K or not. So P may be part of the classificatory practice for K even if we do not regard
$P$ as definitional of or essential to $K$. The second arc thus requires that recognition of the fact that $K$ includes $P$ leads to us using $P$ in classifying things as $K$.\footnote{The property $P$ may be a negative property, the absence of its complement.}

To summarize, the looping effect occurs when:

i. the practice of classifying things according to predicate ‘$K$’ leads to a change in the cluster of properties constituting the kind $K$ (where ‘$K$’ denotes $K$);

ii. the change in the cluster of properties constituting the kind $K$ leads to a change in the properties used in classifying things under predicate ‘$K$’.

We may define an ‘interactive kind’ as a kind whose property cluster has been formed in part by the looping effect.

I have discussed the looping effect as a relationship between a classification using a single concept and a single kind, as if this effect is isolated from other causal interactions. But in practice multiple classificatory concepts and kinds may be linked together. For example, one looping effect might initiate another, or several looping effects might interact in a more complex way. For example, it has been suggested that ‘homosexual’ and ‘masculine’ are both involved in looping effects and these effects interact with one another. Such interactions will occur, for example, when one classificatory concept that is subject to a looping effect is one of the criterial concepts employed in the application of another classificatory concept that is also subject to a looping effect.

I noted above that changes in classificatory practices often occur in the normal process of science that do involve ‘interaction’ between classification and the phenomena, such as the debates of the classification using the kind term ‘reptilia’. Other example include whether guinea pigs should be classified as rodents or Pluto as a planet. But these do not exemplify the looping effect since no actual kind has been changed. It has been proposed that ‘reptilia’ should be redefined from a paraphyletic kind that excludes birds to a monophyletic kind that includes bird. Let ‘reptilia\textsubscript{p}’ denote the first, paraphyletic kind and ‘reptilia\textsubscript{m}’ denote the monophyletic kind. Neither the kind $\textit{reptilia}_{p}$ nor the kind $\textit{reptilia}_{m}$ has changed its correlated properties. Rather, if the change in classificatory practice is accepted, ‘reptilia’ will have changed its denotation from the first kind to the second kind.

So far this identifies a simple causal structure between a classification scheme and the clustering of properties found in the world. But is this sufficient to pick out the kinds (or classes, if you prefer) that Hacking is interested in? (In the light of criticism from Bogen and Haslanger. Ref these) Maybe more needs to be said about the causal mechanisms in operation, and this will add specificity? Hacking gives us what he calls a framework of five elements:

(a) classification
(b) people
(c) institutions
(d) knowledge
(e) experts

But this list of concepts doesn’t itself really amount to a framework—we need to see some functional relationships between them in order get more detail on how looping in fact occurs. One possible route to constructing this framework is to employ Hacking’s idea of a ‘way of being’. It is difficult to define a ‘way of being’, and in
any case I think it more useful than essential to understanding what is going on. For current purposes, I would suggest we see a way-of-being as a conceptual structure consisting of a set of related characteristics that can be grouped under a single label that putatively serve to explicate a significant aspect of the people with that label: ‘marathon runner’ and ‘devout Catholic’ might be examples. To say that someone is a marathon runner is not just to say that the have run a marathon, but that they train in certain ways, look after their health in certain ways, probably have a certain sort of physique, and so forth. So my proposal is that the existence of a classification (the first element in Hacking’s framework) can set up a way-of-being. The way of being affects the subjects in the universe of classification, via the remaining four elements of Hacking’s framework. That is, it is because people, institutions, and so forth are able to think of subject as potentially or actually exemplifying the way-of-being that the kinds of people are affected and changed.

The way-of-being idea may be extended to include more transient ways, such as ways-of-being that are contextual or ways-of-behaving. Hacking mentions Sartre’s waiter, who adopts what one might call a ‘waiter-way-of-being’. Presumably the waiter doesn’t or need not manifest the waiter-way-of-being when he is at home or on holiday. Drunkenness is another interesting case, for the evidence suggests that people behave in ways when drunk that conform to their stereotypes of drunken behaviour. Many young Britons become uninhibited and violent when drunk, but the evidence suggests that this is not a physiological effect of alcohol. Rather the individuals in question behave this way because they associate drunkenness with this way of behaving. If they associated alcohol with different forms of behaviour (as the French do), then they would behave differently in the response to the same kind and quantity of drink.

The most important element of Hacking’s quintet as regards the effects of ways-of-being on the structure of kinds is people, (b). It is also the element that has attracted almost all the discussion. In this case the subjects themselves employ a certain way-of-being concept, and this affects their behaviour, by adopting the characteristics bundled in the way of being or by avoiding them or in some other way (as we have discussed already), and so change the kind.

Figure 4: One route for implementing arc 1. Classification affects a kind by creating a way-of-being that people (who may be classified) understand and respond to.

Is this the only route that a way-of-being affects the kind, via the self-perception of people, and even if it is, is the whole story? Arguably there are other routes of the way-of-being to affect the subjects other than via their own consciousness. For institutions and experts may think in terms of ways-of-being and cause people to change their characteristics independently of whether the subject see themselves in terms of a relevant way-of-being. Once upon a time good Catholics would eat fish on Friday, go to confession on Saturday, and to mass on Sunday. One could imagine that being true because an individual thinks to him/herself, I am Catholic, and this is what a good Catholic does; but one could
imagine that this could occur because the Church hierarchy decides that this is what Catholics should do and tells them to do so, and so they do so; one could at least imagine this occurring without the individuals think of themselves as doing so as part of a Catholic-way-of-being. In fact both mechanisms were at work, and indeed they reinforced one another. An effective way for an institution to create or change a way-of-being is for it to get the relevant subject to adopt that way-of-being for themselves.

What goes for institutions goes for experts. Doctors create and mould medical ways-of-being. Medical experts led to the medicalization of the pregnancy way-of-being, which, as in the Catholic case, operates in large part through the adoption of the medicalized-pregnancy-way-of-being. Hacking's description of high-functioning autism is like this. But it is prima facie plausible to extend this to cases where doctors cause patients to conform to a way-of-being without the individuals thinking of themselves in that way.

And what goes for institutions and experts, goes also for society as a whole, where what passes for common knowledge causes us to treat people belonging to particular kind in certain ways and so modify their behaviour and characteristics. Again this will typically involve the self-perception of those individuals, but one ought to consider the possibility that it need not always do so.

As one might expect, in many cases there is involvement of all the above. I suggest that it has become a part of the 'common-knowledge' schizophrenic-way-of-being that it involves a propensity towards violence, fed by many media reports. One plausible story about this is that it stems from a decision to treat many serious cases in the community. The community setting makes it less likely that a patient will take their medication, which is a factor for violence. Moreover, the general public is at best indifferent to the schizophrenics amongst them and very often hostile. Perceived hostility from others (which may include indifference perceived as hostility) is another strong predictor of violence in schizophrenics. So in this case, decisions by politicians and others (i.e. institutions and experts) causes schizophrenics to be put in a position which generates a certain behavioural characteristic. Furthermore, this in turn causes that characteristic to become, in he perception of many people, part of the schizophrenic-way-of-being. That would be the second arc of the looping effect in action. That in turn, I conjecture, causes people to be even more hostile hence increasing the likelihood of violent behaviour. And so the looping effect reinforces the presence of this characteristic in the schizophrenic-way-of-being, but this is not mediated via the schizophrenic's own adoption of that way-of-being. Another case would be the decision to regard drug addiction as a criminal rather than a public health problem.

I have suggested that we should consider routes for the first arc of the looping effect, from classification to changing property-cluster, that do not go via the consciousness of potential subjects (‘people’ in Hacking's framework) but via institutions, experts, and common ‘knowledge’. It may be relatively uncommon that there are such effects without any involvement of self-consciousness on the part of the human subject, for most human subjects are keenly aware of how they are categorised by others or might be categorised and respond accordingly. So the people element will typically be part of the mix. But that does not mean that there are not some cases where it is not part of the mix.

However, such a possibility does raise the question of whether there is a clear dividing line between such processes as applied to people and when applied to other entities. So one could claim that there is a tippler-way-of-being, which is a way-of-
being for a certain breed of domestic pigeon originating in Macclesfield in the mid-19th century and developed since, which includes the way the birds should look, how they fly (which should be a graceful butterfly action), and so forth. Birds are fed, housed, bred, and trained in order to conform to this way-of-being. It is said that tipplers were brought to Britain from India, being prized for this high-flying, long-endurance and aerobatics. The latter characteristic gave the breed its name but was bred out of them to concentrate on duration flying, leaving aerobatics to the roller pigeon.

3 A challenge to realism?

What does the above tell us about natural kind realism? Do these interactive kinds support a version of nominalism, dynamic nominalism?

Muhammad Ali Khalidi claims that one cannot non-arbitrarily limit the interactive kinds to human kinds. In which case, the nominalism or anti-realism that attaches to interactive kinds cannot be isolated from natural kinds. So Khalidi comes to the conclusion that interactive kinds present a problem for natural kind realism.

Rachel Cooper, in an earlier paper, also argues that there is no radical difference between interactive, human kinds and natural kinds. But the lesson she draws from his is not that there is any problem with natural kinds, but rather that the human kinds should be included among them.

While my questions about realism and nominalism, like the discussions of Khalidi and Cooper, are phrased in terms of natural kinds, there are nonetheless, not really about natural kinds qua kinds at all, in that we have not depended on any especially strong claims about natural kinds in particular we haven’t sought any
answer to the kindhood question from Mill: what makes a natural kind a kind? So we can, for current purposes, set aside the fact that Hacking has given up on talk of natural kinds. Even if one gave up on the terminology of natural kinds; the nominalism-realism debate would remain and much of what Cooper says could be reformatted to address that debate.) (Despite the footnote to ‘Kinds of People: Moving Targets’ (fn. 17, p. 271.)

A key question for both Khalidi (2010) and Cooper (2004) concerns mind independence. Khalidi points out that interactive kinds are mind-dependent, so we cannot say in general that natural kinds are mind-independent. However, mind-independence as a necessary condition for realism about some subject matter needs to be formulated carefully. And that fact is not new news. Psychology is not condemned to be given an anti-realist treatment because its subject matter is the mind itself and so is mind-dependent. It remains the case that the facts of psychology are independent of our attitudes to those very same facts.

Prima facie at least, it does appear that what way-of-being there are can indeed depend on our beliefs about what ways-of-being there are. Cooper’s response to the mind-dependence (or idea-dependence, in her discussion) accusation is to draw upon the distinction between genuine and relational change. To use Cooper’s example, one might argue that beauty is subjective on the grounds that while the Miss World winners from the 1950s may appear short and plump to us, in their day they did not appear that way. What is beautiful is relative to the prevalent ideas of beauty. So subjectivity as idea-dependence is a matter of merely relational change. The changes involved in the cases of Hacking-style interaction we have been discussing are genuine changes and so do not seem to be cases where the subjectivity charge can stick.

While I think that is right, it does not wholly answer the question. After all, an idealist might think that mind-dependent changes are genuine changes. But in such cases, the mind-dependence is constitutive of the change not causally responsible for it.

As I have understood the interaction cases, certain clusters of properties have been brought about by the existence of our classificatory practices. These are indeed clusters in the relevant sense, sets of properties that have non-accidental correlations that allow for inductive prediction. The mechanisms we have discussed show that these correlations are indeed non-accidental. Perhaps the correlations are not induction-supporting because they are transient? To borrow Hacking’s example of the hip and the square, by the time that parents and other square types have worked out what is hip, it isn’t hip any more. As Cooper argues, the fact that the correlations change and may change quickly, does not seem germane to the question of realism. The targets are indeed moving as Hacking says; moving targets are more difficult to hit, but not impossible, as many a pheasant has learnt to its cost. So looping and interactive kinds present a challenge to the human scientist, but the ingenuity of science need not be defeated by that challenge.

So I don’t think that looping/interaction are uniquely a phenomenon that affects people and their classification or description. They are a phenomenon that comes about because of humans and they way they classify and think about things. But not in any way that should motivate nominalism or bring realism into doubt. In discussion of this point, Ian Hacking remarked that the historian of science Bert Hansen asked why Hacking had chosen the term ‘dynamic nominalism’ rather than ‘dialec-
tical realism. Hansen it right: this is a version of realism, since the kinds a genuine kinds: the properties in question do indeed cluster, it is not that they appear to cluster, and that’s all that is required for a natural kind to exist (in the sense of weak realism).

Where the phenomenon of looping does have philosophical consequences is, I think, in testing or blurring the boundary between the natural and the artificial. The blurred distinction in question is primarily one between natural and artificial kinds and groupings rather than between natural and artificial objects. A basic form of interaction, of the first arc of looping may be typical for artificial objects and their kinds, since the existence of a plan or prototype will ensure that objects exist which confirm to that plan and are differentiated from one another accordingly. The typology of orchestra instruments ensures that certain kinds of instrument with their clustered properties exist whereas intermediate instruments or other conceivable instruments do not exist. However, the existence of the second arc of the looping effect is less obvious. However, significant unintended properties are unlikely to be attached to the kind as a result of such a process, and so it is less likely that there is a basis for a feedback effect on the classification scheme. That said, it’s not impossible and I would not be surprised if a careful look at the evolution of musical instruments should some such effect. Another area to look at would be the orders of classical architecture. There have been classificatory changes there. So the ‘fourth’ order, the composite order was not in classical times regarded as a separate order, but was taken to be a Roman version of the Corinthian order. However, in the renaissance, the order was classified separately. It may be that this has something to do with the fact that the Composite capital were was regarded as especially suitable for churches dedicated to the Virgin Mary, on account of its more ‘feminine’ appearance.

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