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Locke and Natural Kinds

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Locke famously wrote that 'Men make sorts of Things' by which he is often taken to mean that people rather than nature divide up the world into species: real essences or inner structures of things do not determine the boundaries of species; species are made by us when we select a set of qualities which we regard as essential for species-membership. In recent scholarship this reading has been questioned. According to these scholars, Locke is a realist, who assumes the existence of real essences shared between individuals of the same species. These shared essences can explain why we see stable, well-delineated and objective differences and similarities in nature. This paper argues that this recent line of interpretation weakens the radical nature of Locke's central message. It defends a conventionalist interpretation, arguing that on Locke's own understanding of essence, species, and classification, he cannot be a realist about natural kinds.

I. Introduction

Locke's central message in Book III of the *Essay* is that species are made by us, not by nature: 'Boundaries of *Species*, are as Men, and not as Nature makes them, if at least there are in Nature any such prefixed Bounds' (3.6.30: 457).[1] As Locke explains, nature produces things and their qualities (and hence also agreements

1. References to Locke's *Essay concerning Human Understanding* are to book, chapter, paragraph, and page in P. H. Nidditch's 1975 edition (Locke 1975). Italics are in the original unless otherwise stated.

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and dissimilarities between things), but it does not produce 'species'. For Locke, that means that nature does not tell us which qualities are essential for a thing to possess in order to count as a member of a species; that is what *we* do when we select a set of qualities which we regard as essential for species membership, e.g., yellow, malleable, and fusible in *aqua regia* for gold. Our ideas of these qualities form the ingredients of our general (or abstract) idea of gold, called by Locke the 'nominal essence'; if a specimen of metal is to count as gold, it must answer to this general idea, that is, it must possess the qualities collected in our idea of the species. For Locke, therefore, what is essential relates only to our ideas: 'So that *essential, and not essential, relate only to our abstract Ideas, and the names annexed to them*' (3.6.4: 441).[2] Hence, it makes no sense to talk of 'species' independent of our ideas: 'to talk of specifick Differences in Nature, without reference to general *Ideas* and Names, is to talk unintelligibly' (3.6.5: 441).

If species, sorts, or kinds 'relate only to our abstract ideas', then 'natural kind' would be a contradiction in terms, because species, in the way Locke introduces and uses the term, are the workmanship of the human understanding, not of nature. But does Locke hold that there are no natural kinds (an ontological claim), or does he (merely) hold that there are no knowable natural kinds (an epistemological claim)? Or does he perhaps want to remain agnostic about the existence of natural kinds? In recent scholarship, Locke is often said to assume the existence of natural kinds. Thus, according to Peter Anstey, Locke's claim that 'man make sorts of Things' 'is not the claim that the mind constructs or determines which classes there are in nature'; Locke assumes 'the objective existence of species': 'There are naturally occurring clusters of properties, which have their foundation in the real essences or corpuscular structures of objectively existing kinds' (Anstey 2011: 207, 211, 213). Robert Pasnau likewise argues that Locke is a 'defender of natural kinds' in the sense of 'objective clusters of individuals', and that, for Locke, there is an 'objective fact' about what these classes are, giving a 'unique system of species that best captures the similarities and differences among individuals' (Pasnau 2011: 646, 644). According to Allison Kuklok, Locke's critique of the presumption that species are based on mind-independent essences targets only species *as distinguished by us*: 'Locke does not attack real essences of the sort that are the essences of real species, but rather the presumption that a sorting according to our species concepts and their names is a sorting according to their real essences' (Kuklok 2021: 61). And in a comprehensive discussion, Matthew Stuart argues that Locke's 'rejection of essentialism

2. Nothing is essential 'till the Mind refers to some Sort or *Species* of things; and then presently, according to the abstract *Idea* of that sort, something is found *essential*' (3.6.4: 440); 'every thing, in each Individual, will be *essential* to it, or, which is more true, nothing at all' (3.6.5: 442). In such contexts Locke uses 'specifick' and 'essential' interchangeably (e.g., 3.6.5: 441). This is generally called 'Locke's anti-essentialism'; for discussion, see Stuart (2013: 162–72).

does not preclude him from saying that there are natural kinds', and that 'on some ways of understanding the claim that there are natural kinds, Locke's view can be understood as the view that 'there are probably natural kinds' (Stuart 2013: 141, 182). According to Stuart, Locke often assumes that individuals belong to the same species in virtue of a similar real essence they share.

In this paper I want to defend the claim that while for Locke nature provides the material and gives us every reason to sort things into groups on account of their similarities, he consistently holds that it is the human mind that has to decide which qualities are essential for species membership. He never argues that the material in the form of stable groups or not-so-stable groups (when, as we will see, nature 'jumbles patterns') already presents a system of objectively given kinds, independent of human classification. Only in one or two places does Locke tentatively suggest that similarities at the observational level might indicate similarities at the microscopic level (which remains inaccessible to us). Nevertheless, he insists on the human factor: even if we could inspect—*per impossibile*—these inner structures, they do not provide us with species but only with more similarities and dissimilarities. For Locke, species membership is always and only a matter of falling under an abstract idea. This means that, on his understanding, a 'natural kind' is a contradiction in terms.

It is, of course, important to be clear about the term 'natural kind'. From the positions just quoted, which will be discussed in more detail below, we can see that 'natural kind' (or 'real species') is used here in two related ways: (i) as a grouping of similar individuals,[3] and (ii) as a grouping of similar individuals, *explained in terms of a real essence these individuals share*; that is, (ii) adds an explanation of the similarities among the individuals in (i). Concerning (i), it is undeniable that what we call 'species' frequently (though, as we'll see, Locke seriously questions how frequent this really is) appear to us in regular clusterings. We see, for example, what we call by their species-names 'blackbirds' and 'song thrushes' as clearly distinct clusterings or groups, and these distinctions exist independently of us. But these groups become species only after the selection of qualities made by the human mind. In the case of many life forms (varieties, subspecies), classification often is not an easy matter: what presents itself as one group of similar individuals may be classified as one, two, or more species by biologists, depending on which features are essential for their species-concept. As I will argue, it would be far from Locke's mind to think that there is a 'unique system of species that best captures the similarities and differences among individuals', and that there is an 'objective' fact of the matter what these classes are (Pasnau 2011: 646, 644). Concerning (ii), I will argue that on Locke's view

3. Cf. Jones (2023, §4.3): 'To say that a kind is *natural* is to say that a grouping of similar individuals exists independently of human decisions'. Cf. Pasnau (2011: 646, 644).

there are only individuals with their real essences, which give rise to (observable) qualities, some of which we select to include in our idea, thereby creating the species. He is reluctant to answer the question of whether individuals falling under the same nominal essence share a real essence. To this end, I will discuss some recent interpretations according to which Locke assumed the existence of objective boundaries at the level of real essences. Here I distinguish two versions: individuals belong to the same species in virtue of having (a) an *identical* real essence or (b) a *similar* real essence. I think that in particular the second option provides a promising line of defense of natural kinds, but, as I will argue, Locke has several reasons for being highly skeptical about such a claim.

I will proceed accordingly. In the next section, I examine some points from Locke's discussion of real and nominal essences that are relevant for what follows. In Section III, I consider variety (a), and in Section IV, variety (b), including the textual evidence adduced in support of the idea that Locke believes that individuals belong to the same species in virtue of a similar real essence they share. In Section V, I discuss a similar interpretation, according to which Locke does not reject real species founded on real essences, and that for him human classification of species is not arbitrary. My conclusion in Section VI is that Locke's own account of 'species'—which he says 'relate only to our abstract ideas'—commits him to the view that there are no natural species or natural kinds in the sense of species, classes, or sorts produced by nature. Nature provides us with groups or clusterings of qualities—some stable, some less so—and in this sense our species based on clusterings are real enough; but these clusterings do not provide us with criteria for species membership.

II. Real and Nominal Essence

Locke argues, time and again, that things are grouped into species by our ideas alone (3.6.7: 443), not by the real essences of things. It is clear, he writes, that 'our *distinguishing Substances into Species* by Names, *is not* at all *founded on their real Essences*' (3.6.20: 449); 'what difference in the internal real Constitution makes a specifick difference, it is in vain to enquire; whilst *our measures of Species* be, as they *are, only our abstract* Ideas, which we know; and not that internal Constitution, which makes no part of them' (3.6.22: 451). True, 'the foundation' of our categorization is provided by nature: nature produces things which often show similarities with one and another, but Locke adds that he 'cannot see how it can be properly said, that Nature sets the Boundaries of the *Species* of Things' (3.6.30: 458). It is, he writes, a 'wholly useless' supposition (3.3.17: 418). Locke's target here is the scholastic notion of substantial form. But in the rest of Book III, he does not seem to think that what he calls 'the more rational Opinion'

(ibid.), according to which real essences are 'the real, but unknown Constitution of their insensible Parts', can do the job any better: these essences provide us with the qualities that form the basis of our ideas and classification, but they are as unknowable as substantial forms are.[4]

However, even if we must remain ignorant of their constitutions, Locke occasionally and tentatively suggests that things that belong to one species 'probably' share a similar real essence: '*Nature makes many particular Things, which do agree* one with another, in many sensible Qualities, and probably too, in their internal frame and Constitution' (3.6.36: 462), even though he immediately adds: 'but 'tis not this real Essence that distinguishes them into *Species* […] 'tis *Men*, who … *range them into Sorts*' (ibid.). Such an assumption of shared essences may guide people in their search for more and more adequate nominal essences, which are supposed to capture the union of properties that stably flow from these inner constitutions or real essences (3.6.37: 462; 3.6.31: 458; but cf. 2.31.13: 383 and 3.6.22: 451). If this is correct, and if Locke indeed assumed that things answering to the same nominal essence are likely to have a real essence or internal constitution in common, he may be said to believe in natural kinds.

If it is Locke's view that there are natural kinds, he seems to be committed to the view that real essences determine the boundaries of species, that is, of natural or real species, not of our species as we classify them, since the latter are provisional and often highly inadequate. But which real essence? As has been widely noted, Locke seems to use the notion in two different ways.[5] When he introduces the term, he speaks of the real, internal constitution of things, upon which 'all discoverable qualities' depend (3.3.15: 417). It is in this sense that we employ the term 'when we speak of the *Essence* of particular things, without giving them any Name' (ibid.) or, as he says elsewhere, 'without any relation to any thing without it' (3.6.6: 442). Real essence in this sense is the unsorted, unnamed inner constitution of an individual thing, unique to that thing and not shared with anything else.[6] However, there is a much-discussed passage in which Locke writes that essence 'even in this sense, *relates to a Sort*, and supposes a *Species*'. Take gold:

> Supposing the nominal Essence of *Gold*, to be Body of such a peculiar Colour and Weight, with Malleability and Fusibility, the real essence is that Constitution of the parts of the Matter, on which these Qualities, and their Union, depend; and is also the foundation of its Solubility in *Aqua Regia*, and other properties accompanying that complex *Idea*. (3.6.6: 442)

4. For discussion, see Conn (2003: 37–40); Bennett (2001: 94); Stuart (2013: 146–48).
5. Cf. Stuart (2013: 148–54).
6. Cf. Winkler (2016: 214–15). Cf. note 2 above.

In this sense, real essence seems to be relativized to the nominal essence: it is the structure responsible for the qualities summed up in our nominal essence. Locke immediately adds, however: 'Here are *Essences* and *Properties*, but all upon supposition of a Sort […]: but there is no individual parcel of Matter, to which any of these Qualities are so annexed, as to be essential to it, or inseparable from it' (ibid.). And he concludes the passage as follows: 'as to the *real Essences* of Substances, we only suppose their Being, without precisely knowing what they are: But that which annexes them still to the *Species*, is the nominal Essence, of which they are the supposed foundation and cause' (ibid.). Locke's point, then, is that if we think of a thing all by itself, unclassified (unranked) and unnamed, its real essence is its inner structure, responsible for all its qualities, and that if we think of the thing as member of a species, its real essence is the inner structure causally responsible only for those observable properties that we have selected for species membership (and it is, of course, also causally responsible for all the other qualities of that thing). Locke himself does not seem to distinguish between these two senses of real essence, perhaps because they are closely connected: if the real essence as inner constitution is responsible for all the thing's discoverable qualities, then, naturally, it is also responsible for a subset of that total set, namely, the subset of qualities that *we*—not nature—have selected and regarded as 'properties' essential for species membership.

III. Identity between Real Essences as the Foundation for Natural Kinds

If two senses of real essence must be distinguished, we may ask what role they play in establishing natural kinds. Let us first look at real essence as the total inner constitution of an individual thing. This is the arrangement, or organization, of its 'insensible parts' (3.6.2: 439).[7] We may then ask, with Pauline Phemister:

> Can there exist two bodies whose real essences are identical when these essences are thought to cause, not just the properties of the things, but all the sensible qualities they might ever display? Does he want to keep open the possibility that two distinct individuals might have exactly the same configuration of insensible particles right down to the last minute details? (Phemister 1990: 47)

Phemister thinks Locke must grant this possibility: 'even though a real essence is responsible for all the qualities of a body, it might also be a real essence of a

7. For the two possible senses of 'internal constitution' (viz. as substance or mode), see Stuart (2013: 151).

species, for there could be two, three or more individuals with the same real essence. These would then make up a natural species' (ibid, 52). To support this claim, Phemister refers to an oft-quoted passage in which Locke speaks about 'wary chemists', who discover that they

> sometimes in vain, seek for the same Qualities in one parcel of Sulphur, Antimony, or Vitriol, which they have found in others. For though they are Bodies of the same *Species*, having the same nominal *Essence*, under the same Name; yet do they often, upon severe ways of examination, betray Qualities so different one from another, as to frustrate the Expectations and Labour of very wary Chymists. (3.6.8: 443)

Phemister argues that the words 'sometimes' and 'often' imply that 'occasionally these pieces of matter might *not* betray qualities different from one another', and that 'it would be reasonable to conclude that, in all probability, there are real essences of species' in case no differences can be detected even after thorough investigation (Phemister 1990: 49, 53). These identical structures would form a natural kind, and Locke, she concludes, 'realised that he had left open the possibility of natural species of this kind' (ibid. 55).

What are we to make of this scenario? Must Locke indeed allow it? Read as a metaphysical claim, it seems it must be allowed. It will never be possible to know whether the scenario obtains, but it cannot be ruled out a priori. In other words, Locke's own notion of species, which are the workmanship of the understanding, is theoretically compatible with groupings of identical real essences, constituting a 'natural kind' or 'natural species', which are the workmanship of nature. We do not need therefore to deny that the scenario is possible. The next question is: how likely is it that the scenario obtains? For Phemister, this is a relevant question. Her answer is: 'on Locke's own principles, two bodies could have the same real essence and yet look or appear quite different' (Phemister 1990: 52). And certainly in the case of great similarity, when two things do not differ at all and seem to have all their qualities in common, 'it would be reasonable to conclude that, in all probability, there are real essences of species' (ibid, 53). In other words, the scenario of identical structures (as foundation of natural kinds) becomes more likely when we encounter strongly similar or identical things. Because Phemister supports the possibility of this scenario by referring to Locke's comments on the similarities between things, it is a legitimate question to ask to what extent such a scenario is a live option for Locke.

As said, the scenario is a theoretical possibility that cannot be ruled out. However, since we can never know whether it obtains, the scenario is moot and cannot figure in our understanding. Of course, epistemic considerations of this sort do not invalidate the theoretical possibility of two identical structures,

but if we want to say something more about this scenario than that it is merely possible, we must start with the observed similarities on the basis of which the scenario is said to be more or less likely. As we have seen, Phemister argues that the scenario becomes more likely if things are similar in all their qualities ('when no differences are found'). I think, however, there is enough textual evidence to make this claim problematic. Let me mention three points in support of this.

First, the textual evidence for this claim is very indirect. Locke's message in the chemist passage is not that there may be individuals, after all, that are identical in all their qualities, from which we may draw the conclusion, in Phemister's words, 'that, in all probability, there are real essences of species' (ibid. 53). Rather than concluding that there might be cases where extremely similar things might have identical structures, and thus forming real essences of species, Locke concludes that, because we cannot draw any such inferences, real essences do not form a species. His point, defended throughout Book III, is that the essence of a species (e.g., gold) is given by the nominal essence. Do real essences, perhaps, then constitute a species of a *different, non-Lockean kind*? Unsurprisingly, Locke never says so: an explicit allowance would surely undermine what he presents as his central message in Book III concerning the essence of species.

Second, the scenario of a natural kind based on identical real essences is said to be possible on 'Locke's own principles'. I agree that his principles leave such a scenario open, for even if two individuals do not look identical in all their qualities (e.g., when they are in different places and times), the possibility that they have an identical real essence cannot be ruled out. Locke, however, is adamant that we cannot draw any such conclusion, as his examples, e.g., concerning the chemists, aim to show. As he argues:

> having no *Ideas* of the particular primary Qualities of the minute parts […], we cannot tell what effects they will produce; Nor when we see those Effects, can we so much as guess, much less know, their manner of production. Thus having no *Ideas* of the particular mechanical Affections of the minute parts of Bodies, that are within our view and reach, we are ignorant of their Constitutions, Powers, and Operations. (4.3.26: 557)[8]

Again, epistemic inaccessibility is no argument against the possibility of identical real essences constituting a real kind. But if a scenario must remain a merely theoretical possibility, it is difficult to see what work it can do for us. This is a point to which I will return in Section IV.

8. For a critique along slightly different lines but reaching a similar conclusion, see Jones (2010, in particular pp. 148–153).

Third and finally, when Phemister suggests that 'if Locke adopts a material atomism, the possibility of there being two individual things which have *all their qualities* in common must be allowed' (ibid. 50, my italics), we must notice that this notion of 'all their qualities' can apply only to those qualities we can observe. According to Locke, however, it is impossible to know *all* the qualities of a substance; hence, it is impossible to know whether two substances have *all* their qualities in common, since, as he argues (following Boyle), we should not think of substance 'as an entire thing by it self, having all its Qualities in it self, and independent of other Things', but should realize that the qualities we see and take as leading qualities (size, color, etc.) are themselves caused by, or dependent on, a myriad number, which even 'the severest Enquiry can never discover' (4.6.11: 586; cf. 2.23.9: 301; 2.31.10: 382):

> We are then quite out of the way, when we think, that Things contain within themselves the Qualities, that appear to us in them: And we in vain search for that Constitution within the Body of a Fly, or an Elephant, upon which depend those Qualities and Powers we observe in them. (4.6.11: 587)

If the severest enquiry 'can *never* discover' all the qualities, we will never be able to know when things are alike in all their qualities, which makes any inference to the identity of their real essences even more shaky than in the case of qualities so far observed.

To conclude this section, Locke's text does not explicitly rule out the possibility of identical real essences. Such a group of essences could be said to form a natural species, and such a nature-given group is compatible with Locke's own notion of species as the workmanship of the understanding. I have argued, however, that Locke never seriously considered such a scenario. The scenario is theoretically possible, but since nothing more can be said about it, Locke does not need to affirm or deny it. To some extent, his situation is similar to Hume's. Hume pushes causal connection outside the realm of ideas: 'We have no idea of this connexion, nor even any distinct notion what it is we desire to know, when we endeavour at a conception of it', which leads Kenneth Winkler to conclude that 'Hume need not say that there is no such thing as objective connection; it is enough for him to say that we cannot *in any way* conceive of it'.[9] Locke, too, as we will see, says that we cannot advance 'one jot' beyond the limits of our ideas (2.23.29: 312). Hence, a species of a different kind than the species we make may or may not be, but its possible existence does not, and cannot affect our understanding and our science as it lies outside the boundaries of experience.

9. Winkler (2007: 73); Hume, *Enquiry concerning Human Understanding*, VII.2. For this reading of Hume, see Winkler (2007); Blackburn (2007; 2008: 32).

IV. Similarity between Real Essences as the Foundation for Natural Kinds

We have just looked at the possibility that total real essences of individuals, in all their particularity (down to the level of atoms), are identical with one another. Another candidate is a real essence relative to the nominal essence: individuals belong to the same species because they share an inner constitution that causes them to be similar. Unlike the previous scenario, however, their shared internal constitutions need not be identical atom-for-atom. As Matthew Stuart proposes: 'To say that two individuals with one or two observable features in common share a real essence might be only to say that they share some very general structural features, features that might be realized in them very differently' (Stuart 2013: 180; cf. Anstey 2011, ch. 11). It is in virtue of having a similar inner constitution that things grouped together can be regarded as a natural kind. In this section, I will discuss such an interpretation, starting with a review of passages in which Locke is believed to assume the existence of shared essences that underwrite species.

Passage 1. An oft-quoted passage comes from Locke's 1693 letter to Molyneux, in which Locke tries to remove the misunderstanding that he does not believe in species: 'therefore I hope I have no where said, *there is no such sort of creatures in nature as birds*' (Locke 1978: 626, letter no. 1592). What he meant, he says, is 'that the combination of simple ideas which the word bird stands for, is to be found in that particular thing we call a sparrow'. As he explains:

> This I do say, that there are real constitutions in things from whence these simple ideas flow, which we observ'd combined in them. And this I farther say, that there are real distinctions and differences in those real constitutions one from another; whereby they are distinguished one from another, whether we think of them or name them or no. But that that whereby we distinguish and rank particular substances into sorts or genera and species, are not those real essences or internal constitutions, but such combinations of simple ideas as we observe in them. (ibid.)

Unlike other scholars, I do not think that Locke here assumes that there are shared real essences forming natural kinds.[10] In the first two sentences, Locke says that individual things have their own real constitutions, and that these constitutions differ one from another (something that goes against his belief, so often expressed in the *Essay*, that we are completely ignorant about them). He clearly does not say that these real constitutions form species. Only in the last sentence

10. Anstey (2011: 205) interprets this passage, without quoting the last sentence, as 'clear a denial of species nominalism'. Winkler (2015: 229) also seems to read it in support of the thesis that Locke endorses the assumption of shared real essences or 'natural kinds'.

does he speak about species, repeating his view that they are 'ranked' by our ideas rather than by real essences, though whether this is a matter of fact (owing to epistemological limitations) or necessarily so (because, even if we could know real essences, we would still not see species), he does not say.

Passage 2. In another passage cited in support of the idea that Locke assumes real essences underwriting our species, Locke speaks of his encounter with a strange bird in St. James's Park.[11] Upon being told that it is a cassowary, Locke says that before he had learned that name, he knew hardly anything about 'that *Species* of Birds' but that he can now use this word to stand for his complex idea, even though he knows 'no more of the real Essence, or Constitution of that sort of Animals, than I did before' (3.6.34: 461). While Locke speaks here of the real constitution of 'that sort of Animals', he certainly does not make the claim that individual cassowaries share the same internal constitution, or that this constitution determines the boundary of the species. In fact, he had just associated real essences with substantial forms, saying that genus and species are man-made 'without any consideration of *real Essences*, or *Substantial Forms*' (3.6.33: 461). The conclusion Locke draws here is that 'specifick names' such as '*Cassuaris*', 'Swans, or Herons' (the latter 'very well known of sorts of Birds common in *England*') are made by us: '*Men make sorts of Things*' (3.6.35: 461).

Passages 3 and 4. This conclusion is repeated two sections later, but here Locke seems to leave open the possibility that similar things may share the same internal constitution: '*Nature makes many particular Things, which do agree* one with another, in many sensible Qualities, and probably too, in their internal frame and Constitution' (3.6.36: 462). But, as noted earlier, the assumption is immediately qualified: 'but 'tis not this real Essence that distinguishes them into *Species*; 'tis *Men*, who … *range them into Sorts…*' (ibid.). Likewise, when things are different, we might be inclined to draw the conclusion that their inner constitutions are different as well, but such a conclusion cannot be drawn:

> But if the Enquiry be made concerning the supposed real Essence; and whether the internal Constitution and Frame of these several Creatures be specifically different, it is wholly impossible for us to answer, no part of that going into our specific *Idea*: only we have Reason to think, that where the Faculties, or outward Frame so much differs, the internal Constitution is not exactly the same. (3.6.22: 450–51)

Because Locke thinks that it is 'wholly impossible' for us to know whether the internal constitutions are *specifically different or not*, it would be strange if he nevertheless assumed that they did form a group of individuals answering to the same nominal

11. Cf. Winkler (2016: 229).

essence. And indeed he says, as we have already seen, he 'cannot see how it can be properly said, that Nature sets the Boundaries of the *Species* of Things' (3.6.30: 45).

Passage 5. Locke is also said to assume real essences shared by individuals belonging to the same species in some other passages.[12] For example, in Book II, he writes about properties of gold 'inseparable from its internal Constitution': 'Some, who have examined this Species [gold] more accurately, could, I believe, enumerate ten times as many Properties in *Gold*, all of them as inseparable from its internal Constitutions, as its Colour, or Weight…' (2.31.10: 382). Locke speaks here about properties, inseparable of the inner constitutions, of the *species* gold, in line with his claim that essences and properties belong to species ('complex *Idea* of Gold'). He does not say here that individual bodies of gold share an internal constitution—again, this would go against his belief that we cannot say anything at all about that level of 'insensible parts'. Instead, in this section he draws attention to the fact, already noted above, that we know only a tiny number of qualities of the almost limitless number of qualities that a substance has:

> And 'tis probable, if any one knew all the Properties, that are by divers Men known of this Metal, there would be an hundred times as many *Ideas*, go to the complex *Idea of Gold*, as any one Man yet has in his mind; and yet, perhaps, that not be the thousandth part of what is to be discovered in it. (2.31.10: 382)

Everybody can have their own idea of gold, and to each such idea there corresponds a set of qualities taken by that person to define the nominal essence of gold. But this set, as Locke points out, can only be a small subset of an almost infinite large set of qualities.[13]

Passages 6 and 7. Further, Locke is said to assume shared real essences in the following two passages:[14] the 'Constitution of *Man*, from which his Faculties […]

12. Stuart (2013: 175–76); cf. Anstey (2011: 211, 217). In his discussion with Stillingfleet, Locke admits that 'where we find all the same properties, we have reason to conclude there is the same real, internal constitution, from which those properties flow' (Locke 1823: 91). Stuart (2013, 176–81) reads the passage as supporting the view that Locke assumes the existence of shared real essences. Kuklok interprets this as 'a throwaway premise in an argument whose conclusion undermines it' (Kuklok 2021: 92). According to Jones, 'it is Stillingfleet's understanding of real essences that is discussed, not Locke's' (Jones 2010: 152). Locke 'is a cagey dialectician in the Stillingfleet letters' (Jones 2007: 677, note 41), something we also see in his exchange with Molyneux (see Jolley 1999: 120). As Locke does not depart from his position as defended in the *Essay*, I will focus on the *Essay* hereafter.

13. Locke's phrase that these properties are 'inseparable' is another way of saying that they flow from or depend on the inner constitutions—locutions very common in Locke (e.g., 3.10.18: 500: 'real Essence, on which those Properties depend'). Properties, as he said, belong 'only to *Species*, and not to Individuals' (3.6.6: 442). On the equation of nominal essence and abstract idea, see Stuart (2013: 143); Winkler (2016: 219).

14. Stuart (2013: 175–76).

and other Powers flow' (3.6.3: 440; cf. 4.6.15: 590), and 'our complex *Ideas* of the sorts of Substances, are so remote from that internal Constitution, in which their sensible Qualities depend' (4.6.10: 584). Locke speaks of a species ('Man') but, again, he does not say that those species have real essences, or that individuals of the same species share a similar essence. For example, in the passage just quoted (3.6.3: 440), Locke speaks about the nominal essence of man, adding that 'yet no body will say, that that complex *Idea* is the *real Essence* and Source of all those Operations which are to be found in any *Individual* [my italics] of that Sort'. Similarly, when Locke writes that 'we want *Ideas* of those real Constitutions of different sorts of Animals, whereon these, and the like Qualities and Powers depend' (4.6.15: 590), he refers to the real constitutions of *individuals* falling under the same nominal essence rather than to an essence of a species in terms of a real essence.[15]

I conclude that these passages do not show that Locke assumed the existence of shared essences that underwrite species. And, as said, in view of his central claim that we are entirely ignorant of these real essences, and hence that it is 'wholly impossible' for us to know whether real essences are specifically different or not, it would be strange if he assumed something about which we must remain, on his own account, completely in the dark.

As before, these epistemic considerations do not show, of course, that natural kinds do not exist. Their existence could be postulated even though we cannot know them, for even if nature does not make our species, it does make the inner constitutions responsible for the systematic coinstantiation of qualities—something Locke frequently confirms, e.g., when he writes that 'the real Essence is that Constitution of the parts of Matter, on which these Qualities [of Gold], and their Union, depend' (3.6.6: 442), or that simple ideas 'are constantly and inseparably united in Nature, and are always to be found together in the same Subject' (3.6.30: 457).[16] Without these underlying essences, there seems to be no foundation for the stable, systematic coinstantiation of qualities we see in the world. This brings me to the second part of this section. Even if textual evidence, as I have just argued, fails to show that Locke assumed the existence of natural kinds, we may ask: how could we understand such a notion of similar inner constitutions in virtue of which individuals belong to the same species?

15. This passage is very similar to 3.6.19: 449, where Locke clearly means a non-sorted individual piece of metal, not a constitution of a kind of substance.

16. Conflating qualities and ideas, Locke speaks of simple ideas 'which do exist in' a particular sort of substance (2.23.7: 299), or ideas 'all united in one common subject' (2.23.14: 305). Note, however, that his terminology often stresses the human factor: simple ideas being '*presumed* to belong to one thing', or '*called* so united in one subject' (2.23.1: 295), from which qualities are '*supposed* to flow' (2.23.3: 296); ideas 'which he has usually observed, or *fancied* to exist together under that denomination' (2.23.6: 298); italics are mine.

One well-known way to understand this is in terms of a homeostatic property cluster, that is, a collection of properties of which individuals of the same species have their own subset.[17] One robin can have one subset of properties, while another robin can have a different subset, but none of these properties is an essential property of the species *robin*, and no proper subset of them is a species essence.[18] Robins form a natural kind because of an underlying structure they have in common, which is responsible for the regular and stable cluster of properties observed in them. Because they have this structure in common, it is likely that, upon further observation and testing, more properties will be found that robins have in common.[19] If an individual, for instance, is found to have any of the properties, this will increase the probability that it will also possess other properties of the large set that defines the species robin.

Applied to Locke, Locke's real essences may be described as constitution-types: robins have a real essence of the same type, that is, their internal constitutions are intrinsically alike. On this view, the real essence is not defined in terms of essential properties (thereby respecting Locke's anti-essentialism), but as a set of properties represented in the nominal essence, of which individuals have subsets. The boundaries between types of constitution are drawn by nature. As Peter Anstey argues: 'There are naturally occurring clusters of properties, which have their foundation in the real essences or corpuscular structures of objectively existing kinds' (Anstey 2013: 213); our nominal essences will perhaps never exactly reflect these constitutions, but it is to be expected that they 'will gradually converge to map more accurately their underlying essence' (ibid). On Anstey's account, natural kinds are these objectively existing clusters of properties: 'if Locke believes in objectively existing natural kinds, this union of their defining properties will be cashed out in terms of something like homeostasis rather than human convention' (ibid, 217). According to Anstey, Locke indeed did believe in natural kinds: 'In spite of the limitations of Locke's views concerning the nature of language and in spite of his pessimistic outlook in natural philosophy, he came up with a reasonable account of terms of natural kinds and their referents' (ibid, 218).

As I have argued above, I think the textual evidence does not show that Locke came up with an account of terms of natural kinds and their referents; to give such an account would go beyond the limits of what we can think and say.

17. The idea of essence as a cluster of properties has been applied to biological classification by Richard Boyd, R. A. Wilson, and others. For discussion, see the contributions to Wilson (1999).

18. Wilson (1999: 199).

19. Ibid., 197: 'This is a fact about the causal structure of the world: the instantiation of certain properties increases the chance that other particular properties will be coinstantiated because of underlying causal mechanisms and processes'. Cf. Stuart (2013: 192–93).

Locke therefore does not need to deny or affirm that there are groups of real essences defining species. While it would perhaps have been natural for him to endorse such an assumption, he has clear reasons for being very reluctant to say so. In the remainder of this section, I will discuss Locke's reasons for this reluctance. These reasons, as I'll argue, are epistemic; hence, they do not prove the non-existence of natural kinds, something I do not claim Locke is arguing for. Locke could still believe in natural kinds even if they are unknowable on principle. However, if the claim is that Locke has presented 'an account of terms of natural kinds' in terms of the coinstantiation of qualities, it is not only that the possibility of natural kinds must be allowed on theoretical grounds, but that their existence are based on what, on Locke's account, can be inferred from the observation of sensible qualities. Epistemic considerations are therefore relevant for an examination of the claim that Locke assumed natural kinds to be stable sets of qualities flowing from real essences, the boundaries of which are given by nature.

The first reason is, again, that we simply have no way of telling what happens at the microphysical level: 'the simple *Ideas* we receive from Sensation and Reflection, are the Boundaries of our Thoughts; beyond which, the Mind, whatever efforts it would make, is not able to advance one jot' (2.23.29: 312). Even if structures need not be identical, but only similar, perhaps only in a very general way, to produce species, this would not alter the situation for Locke: he remains more than skeptical about inferences from observation to shared structures and vice versa (cf. Jones 2010). To assume shared real essences relative to nominal essences would, on Locke's account, therefore be highly speculative.

The assumption of shared real essences would not only be highly speculative, it would also not help us in explaining, e.g., why a given set of properties is stable, or why we can expect a particular property to show up in an individual of a particular species, or in explaining what causes such a set. Because internal structures are inaccessible, it is impossible, says Locke, 'to establish certain and undoubted Rules, of the Consequence or *Co-existence* of any secondary Qualities' (4.3.13: 545) or 'to discover by our *Ideas* […] what other *Ideas* are to be found constantly joined with that of our complex *Idea* of any Substance' (4.3.14: 545–46). And even if—*per impossibile*—we could know the 'Constitution of the minute Parts', we would not be able to know 'any necessary *connexion*' between it and the secondary qualities, 'which is necessary to be done, before we can certainly know their *necessary co-existence*' (ibid.). The gap between real essences and observations—while the latter is ultimately caused by the former—seems unbridgeable.

The second reason why Locke is so reluctant to say that things form a natural kind by having a shared real essence is the great number of life forms that defy

easy classification. This might, of course, be a problem only for taxonomists. But if Locke's real essences are described in terms of stable property clusters, the frequent mixing of clusters with fuzzy boundaries becomes problematic. And nature, Locke writes, does often 'jumble' (3.6.23: 451) things together, as can be seen not only in changelings, monsters, and other strange creatures, but in all kinds of life forms, such as fish with wings, birds with cold blood, amphibious animals, and many others, differing 'but in almost insensible degrees' (3.6.12: 447). It is a phenomenon 'frequently to be met in Nature' (3.6.23: 451).[20] These and other examples show that what we think are clearly distinct species are easily mixed. In an interesting passage, Locke says that even biological reproduction does not provide a guarantee for the stability of species:

> Nor let any one say, that the power of propagation in animals by the mixture of Male and Female, and in Plants by Seeds, keeps the supposed real *Species* distinct and entire. For granting this to be true, it would help us in the distinction of the *Species* of things no farther than the Tribes of Animals and Vegetables. (3.6.23: 451)

Because nature frequently 'jumbles' patterns, anyone who hopes the 'pedigree' will tell them to which species an individual belongs 'will find it hard, even in the race of Animals to determine by the Pedigree of what *Species* every Animal's Issue is; and be at a loss about the real Essence, which he thinks certainly conveyed by Generation, and has alone a right to the specifick name' (3.6.23: 452).[21]

Such considerations explain why Locke was so reluctant to endorse the assumption that individual things belonging to the same species share a similar real essence. In fact, to assume that real essences determine the boundaries of species will lead to 'great mistakes': 'if we suppose it to be done by their real internal Constitutions, and that Things existing are distinguished by Nature into Species, by real Essences, according as we distinguish them into *Species* by Names, we shall be liable to great Mistakes' (3.6.13: 448). Because on Locke's account, words can refer only to ideas, he calls this presupposition of words standing for the real essence an 'abuse of language', a 'false supposition' (3.10.21: 502), one

20. According to Stuart, 'the realist about natural kinds can accommodate evidence of "monsters" and "changelings" so long as these cases are the exceptions rather than the rule' (Stuart 1999: 289). For Locke, however, these cases are not exceptions but 'so frequent in the World' (3.6.23: 451).

21. Anstey (2011: 212) argues that leading qualities will tell us whether individuals belong to the same species, adding that 'In substances that reproduce by seed, this is normally their shape, and for inanimate natural substances it is their colour'. But for Locke these leading qualities only serve 'for gross and confused Conceptions, and unaccurate ways of Talking and Thinking' (3.6.30: 457). Reproduction by seed is explicitly mentioned by Locke as devoid of any guarantee that we have a stable essence responsible for a species. Locke was familiar with speculations about species transformations in plants and all kinds of generative variation (see Anstey 2011, ch. 10).

which leads not only to 'great Mistakes' (3.6.13: 448), but also to 'a great Deal of Uncertainty in Men's Discourses' (3.10.20: 502). That is, we should not assume that our species names reflect or refer to real essences.

It may be objected that this critique of the use of our species names is compatible with the belief that individuals belong to the same species in virtue of having a similar real essence. If real essences, however, lie beyond our ken, and for that reason cannot be the referent of our species names, such compatibility amounts to nothing. As Locke explains:

> any one who observes their different Qualities can hardly doubt, that many of the Individuals, called by the same name, are, in their internal Constitution, as different one from another, as several of those which are ranked under different specifick Names. *This supposition*, however *that the same precise and internal Constitution goes always with the same specifick name, makes Men forward to take* those *names for the Representatives* of those real *Essences*, though indeed they signify nothing but the complex *Ideas* they have in their Minds when they use them. (3.10.20: 501–2)[22]

It is because we cannot assume that individuals belonging to the same species must have the same qualities, or, vice versa, that individuals belonging to different species must have different qualities, that we cannot assume that our species names signify '*the same precise and internal Constitution*'. Again, the presence of a group of similar real essences that underlies a nominal essence cannot be ruled out a priori, but it lies beyond our ken. If Locke had assumed their existence, he apparently missed every opportunity in many relevant places to make this explicit.

Locke thus explicitly criticizes the idea that things 'are distinguished into Species, by real essences'. But perhaps, as one might object, his critique targets only what Locke took to be the preposterous belief that the species, as *we* happen to distinguish them, carve nature at its joints. In that case he might still have left the door open for *real* species, that is, natural kinds. This possibility will be discussed in the next section.

V. Real Species versus Species 'As Distinguished by Us'

In a recent interpretation of Locke's discussion, Allison Kuklok argues that Locke's critique of the idea that species are distinguished by real essences is limited to the assumption that species *as distinguished by us* are based on real

22. For a different view, see Stuart (2013: 175), who states that such criticism of the abuse of words 'shows us nothing about whether Locke thinks that the members of kinds are likely to share relative real essences'. For Locke on the abuse of language see Nauta 2021, ch. 8.

essences but that Locke does not reject the existence of natural kinds (or real species) based on real essences: 'Locke does not attack real essences of the sort that are the essences of real species, but rather the presumption that a sorting according to our species concepts and their names is a sorting according to their real essences' (Kuklok 2021: 61; cf. Bolton 1998: 216, note 4). Her interpretation is recent and wide-ranging so I will examine it in some detail.[23] It may be summarized in the following points:

1. We must distinguish between 'real' species and 'parochial' species. The former are founded on real essences independent of human classification; the latter are species picked out by our nominal essences. Locke attacks only the latter.
2. Locke always uses 'real essence' in one and the same sense, 'namely a nature that can be ascribed to many things, and in terms of which we can get matters of classification right or wrong' (Kuklok 2021: 61).[24] It is 'what tradition and ordinary use understands by it, i.e., an essence of the sort that delimits a real species'. The real essence is therefore not relative to the nominal essence:

   > a Lockean real essence is an internal constitution *type*, individuated independently of our nominal essence. And the constantly coexisting qualities that flow from these real essences are what we attempt to copy in our nominal essences […] It appears that Locke is committed to the existence of real essences of the sort that would underwrite real species (Kuklok 2021: 99, 94–95).[25]

   On this reading, a real species is a group of things that have the same real essence, which a fully adequate nominal essence would pick out. However, since real essences are unknown to us, we will never know whether things falling under one and the same nominal essence do indeed have the same real essence.[26]

23. Jones (2022, §4.3) briefly discusses Kuklok 2018.

24. Cf. ibid., 64: 'a univocal, realist reading of real essence'; cf. ibid., 80, where the two different senses of real essence discussed above (namely, relative or not relative to the nominal essence) are reinterpreted as 'not incompatible descriptions of real essence'.

25. According to Kuklok, if real essence were relative to the nominal essence, we would expect things falling under one and the same nominal essence to have the same real essence; however, Locke discusses cases where this is not the case—for example, chemists discover that pieces of sulfur, sharing the same nominal essence, have very different qualities. And, because on her reading 'two things have the same real essence if and only if they have the same properties', Kuklok (ibid., 86, note 60) rejects the interpretation of real essence in terms of property clusters, as put forward by Stuart and Anstey.

26. Ibid., 94–96; 'we're never in a position to know *that* our nominal essences group together all and only things that have the same real essence' (ibid., 96).

3. When people therefore talk of the real essence of a 'parochial' species such as gold, they are not referring to things with the same real essence, because they will never know whether these things have the same real essence. They refer to what ideally would constitute a real species, i.e., what they think would 'ultimately individuate and unite that complete set of constantly coexisting qualities it attempts to copy in a nominal essence' (Kuklok 2021: 96).[27] As such, 'the mind may permissibly invoke the real essence of gold', as long as it realizes that such real essences 'do not determine the boundaries of our species names' (ibid. 97).
4. Because Locke's criticism, on this reading, targets only the assumption that real essences underlie *species as distinguished by us*, any appeal to real essences to settle issues of classification, independent of our current classifications (that is, independent of our nominal essences), is futile. Real essences are 'irrelevant' or 'silent' as to whether, e.g., a changeling must be classified as a human being or a brute, or – to refer to an example to be discussed later – whether a silent and a striking watch are two different species or belong to the same species.[28] In passages where he considers such cases, Locke's point, on Kuklok's reading, is not that classification cannot be based on real essences and *therefore* must be arbitrary, but that classification of our parochial species cannot be based on real essences because there is no way in which *specific* differences can be identified *independently* of our classificatory practices. Thus, when Locke examines difficult cases for the taxonomist, such as a monster or a changeling, this should not be read, as many scholars have done, as 'an indication that classification is arbitrary, but of the inadequacy of our current classificatory scheme to reality'; such cases 'are intended to destabilize our unearned confidence in the adequacy of our parochial species to reality' (Kuklok 2018: 25; cf. Kuklok 2021:70–72).
5. While at the level of real essences or inner structures the issue of classification thus does not arise, it does at the phenomenal level of observation, and here for Locke classification is not arbitrary at all: people 'follow nature's lead' in using leading qualities and patterns to sort things. In fact, 'there is no moment at which choice must be appealed to in order to explain one or other of Locke's commitments about our ideas of substantial sorts and how the mind makes them'.[29]

27. Cf. ibid., 99: 'Such talk does not pertain to the real essences of the individuals that agree with a given nominal essence but concerns a real essence a nominal essence would pick out if it were adequate'.

28. Kuklok (2018: 10).

29. Ibid., 22, against Guyer, Uzgalis, Ayers, and others.

In short, this interpretation reads Locke as a critic of the presumption that our current classificatory schemes are based on mind-independent essences. His critique does not target natural kinds (or real species) founded on real essences.[30] I will argue, however, that Locke makes no such distinction, and that classification for him is arbitrary in the sense that it is conventional.

First, as argued above, Locke had several reasons for being very reluctant to say or assume anything about the non-observational level of inner constitutions. 'Species' are, by definition, '*ranked' and denominated by us*—that is what makes them 'species' according to Locke (in the sense he had explained). This does not exclude the existence of kinds or species not classified by us, but, as we have seen, Locke does not introduce such a category; in fact, *any* talk of specific differences in nature independent of our ideas is rejected as 'unintelligible' (3.6.5: 441). Locke's point is therefore a general one: any attempt to ground 'species' on (unknown and unknowable) real essences is baseless: 'Nor indeed *can we* rank, and *sort Things*, and consequently (which is the end of sorting) denominate them *by their real Essences*, because we know them not' (3.6.9: 444). Individual things have their real essences, but these real essences (inner constitutions) do not form species or kinds. And even if they do form a group (e.g., in virtue of their supposed similarity), it remains 'unintelligible' to consider such a group as '*specifically* distinct' (which must be done in order to consider it as the foundation of species) from another such group of real essences.

Secondly, according to this interpretation, Locke criticizes the presumption that the species recognized by people are based on real essences. Difficult cases of classification that Locke discusses—e.g., how to classify a changeling—are not 'an indication that classification is arbitrary, but of the inadequacy of our current classificatory scheme to reality' (Kuklok 2018: 25; cf. Kuklok 2021: 70–72). But if human classificatory practices are so inadequate, and if people should be cured from the belief that things in the world form kinds independently of people's classifications, then why may they still 'permissibly invoke' the real essence of gold? Would their notion of real essence, as that ideal type that 'ultimately individuate and unite that complete set of constantly coexisting qualities it attempts to copy in a nominal essence' (Kuklok 2021: 96–97), not invite strong criticism from Locke? Perhaps we may say that this notion functions merely as a regulative idea in the sense that people tend to think of a real essence as a mind-independent nature that is the source of the complete set of constantly coexisting qualities. This, however, would make Locke's critique of this presumption all the more urgent. Hence Locke would, I think, dispute the claim that real essence is that 'in terms of which we can get matters of classification right or wrong' (Kuklok 2021: 61), for it suggests that real essences do the classificatory work after all, independently of our classifications.

30. Cf. also Pasnau, as quoted above in the Introduction.

This brings me to the next point: the nature of classification. As noted, according to Kuklok, passages that have been read as in support of Locke's conventionalism must be read differently. According to her, passages that consider the microphysical level are silent about classifications, while those about the phenomenal level show that, for Locke, classification is not arbitrary at all. Let us first look at the microphysical level. In a famous passage, Locke compares real essence with the inner workings of a watch: 'A silent and a striking *Watch*, are but one *Species*, to those who have but one name for them: but he that has the name *Watch* for one, and *Clock* for the other, and distinct complex *Ideas*, to which those names belong, to him they are different *Species*' (3.6.39: 463). This is usually interpreted as Locke saying that also at the level of inner constitutions classification is arbitrary: even if we had microscopic eyes and could see real essences or inner constitutions, we would still have to decide which similarities or differences count as essential, thereby constituting the boundaries of species.[31] Kuklok, however, argues that Locke's message is a different one. It is not about a watchmaker who 'is tasked with classifying watches on the basis of their internal mechanical differences' and 'finding himself at a loss and coming empty-handed' in how to classify watches (Kuklok 2018: 7). It is about a watchmaker who is asked to do the impossible: to identify specific differences without any appeal to species already in existence. Since we have already classified species, such as watches, at the phenomenal level, the search for specific differences 'independently of the actual parochial criteria in terms of which speakers distinguish striking from silent watches as belonging to different kinds' is irrelevant (ibid. 10). Locke's aim, then, is not to defend conventionalism in classification but to destabilize our confidence in the adequacy of our species-concepts to reality.

However, I argue that in this passage Locke does defend conventionalism and that his aim is not to destabilize our confidence in classification as such. The watchmaker should not be described as someone who is 'at a loss' in classifying watches, for Locke writes that the watchmaker is perfectly free to take subtle differences in the inner mechanics of watches as determining separate species *for him* ('they will then be new *Species* to them'), while for the person who is ignorant of these differences there may be just one species with one name ('watch'). The watchmaker has to decide whether a difference in inner structure counts for him as a specific difference, thereby making a new species, which he is free to do: ''Tis certain, each of these [watches] hath a real difference from the rest: But whether it be an essential, a specifick difference or no, relates only to the complex *Idea*, to which the name *Watch* is given' (3.6.39: 463). Locke does not

31. See, e.g., Guyer (1994: 137); Jones (2010: 156–57); Jones (2007); Ott (2003: 83–84); Stuart (1999: 281–82); Jolley (1999: 154). Although Uzgalis (1988) seems at times to suggest that the existence or non-existence of objective boundaries is the topic of the watch passage, the general thrust of his interpretation is also that what is essential relates to our nominal essence (e.g., 336–37).

thereby undermine our classifications—the watchmaker may have a different classification of watches than the lay person—but he argues that real essences do not make species, which is what we do. Locke continues comparing artefacts such as watches with 'natural things':

> Just so, I think, it is in natural Things. No body will doubt, that the Wheels, or Springs (if I may so say) within, are different in a *rational Man*, and a *Changeling*, no more than that there is a difference in the frame between a *Drill* and a *Changeling*. But whether one, or both these differences be essential, or specifical, is only to be known to us, by their agreement, or disagreement with the complex *Idea* that the name *Man* stands for: For by that alone can it be determined, whether one, or both, or neither of those be a Man, or no. (3.6.39: 464)

In classifying a changeling, an appeal to real essences—if *per impossibile* we could know them—will not settle the issue: to a piece of unsorted (and unnamed) matter, as Locke had repeatedly said, nothing is essential or non-essential. Our classifications are based on our ideas and nominal essences, and to that extent they are 'arbitrary', that is, based on us as arbiters of what *we* take as 'essential, or specifical'. For this reason I think Locke would not endorse the view that Pasnau ascribes to him, namely that there is a '*unique* system of species that best captures the similarities and differences among individuals' (Pasnau 2011: 644; my italics).

Locke reaches the same conclusion for the phenomenal level: we have to decide which similarities that we observe between things count as 'essential' and thereby constitute a species. Does this make the resultant classification 'arbitrary'? It is not arbitrary to put bananas into one group and pears into another—in this sense, people may be said to follow or copy nature: 'Though the Mind of Man, *in making* its *complex Ideas of Substances*, never puts any together that do not really, or are not supposed to, co-exist; and so it truly borrows that Union from Nature' (3.6.29: 456; cf. 3.6.37: 462). It is indeed not arbitrary to group things on account of their size, color, shape, and other 'leading Qualities'. But what is at stake comes in the sentence that follows: 'Yet the *number* it combines, *depends upon the various Care, Industry, or Fancy of him that makes it*'. Hence, classification is arbitrary—not in the sense of being whimsical, random, or implying that "anything goes", but, again, in the sense that it is subject to an arbiter, namely the mind that selects simple ideas as ingredients of the abstract idea or nominal essence. If classification were simply a matter of following nature, we would not find so much discussion and disagreement, nor so many different abstract ideas under the same nominal essence, for example, the several ideas people have of 'man', which Locke lists in his discussion with Stillingfleet (Locke 1823: vol. IV, 90). That people disagree so much is not surprising, since for Locke building up

abstract ideas and naming them is not always a process of just following nature: 'And therefore *different Men* leaving out, or putting in several simple *Ideas*, which others do not, according to their various Examination, Skill, or Observation of that subject, *have different Essences of Gold*; which must therefore be of their own, and not of Nature's making' (3.6.31: 458–59). How people frame their ideas is dependent on their skill, knowledge, and goals.[32]

In conclusion, on my reading, Locke criticizes *any* attempt to ground species on real essences. His attack is not limited to species *as distinguished by us*, because on Locke's understanding of what constitutes a species (sort, kind), there can be no species *not* distinguished by us. To counter any such attempt, Locke emphasizes that the sole way we arrive at species is by framing ideas based on observation. This makes classification dependent on how people frame their ideas of things. 'Following nature' goes a long way in explaining why all or most people would not hesitate to group bananas together, but in most cases that concern the naturalist who wants to classify organisms differing 'but in almost insensible degrees' (3.6.12: 447), this is not so simple, and, because people's ideas depend '*upon the various Care, Industry, or Fancy of him that makes it*', gives rise to endless debates. Such debates will not be ended by an insight into the real inner constitutions of things, but only by mutual agreement on what we include in our nominal essences. As Michael Ayers has put it: Locke's 'remedy was a programme of agreed, precise definitions based on careful observation and experiment, adequately distinguishing substances that we find we need to treat as distinct' (Ayers 1991: vol. 2, 75–76). But Locke did not think—and never argued—that better observation would ultimately present us with ontologically distinct species *independent* of our ideas and classification, because species is the workmanship of the human mind.

VI. Conclusion

In this paper I have argued that on Locke's explicit use of the term 'species', it makes no sense to speak of 'natural species' or 'natural kinds' independent of our ideas: 'to talk of specifick Differences in Nature, without reference to general *Ideas* and Names, is to talk unintelligibly' (3.6.5: 441). Species are based on our ideas, and beyond our ideas, 'the Mind, whatever efforts it would make, is not able to advance one jot' (2.23.29: 312). Species cannot be distinguished according to real essences or structures that fall beyond our ken, but Locke's point is

32. Locke speaks of 'some liberty' people have in making nominal essences (3.6.27: 454), which is a liberty to add or remove simple ideas from complex ideas. For a different view, see Kuklok (2018: 21, 22): 'there appears to be no moment at which the mind chooses (or must choose) […]'; 'there is no moment at which choice must be appealed to […]'.

not only epistemological, for even if—*per impossibile*—we could inspect the inner constitutions, Locke explicitly denies that we would then see species.

It is important, however, to repeat the point that, for Locke, nature produces well-established clusterings (or stable, cohesive groups of qualities). Independent of a classificatory mind, individual things and their similarities and dissimilarities are out there, made by nature. But can we conclude from this that there is an 'objective fact' of the matter as to what these clusterings are? Does nature supply us with criteria to distinguish robins from magpies? In many cases of clearly recognizable groups, it does, of course: as Locke writes, people 'follow' (or 'copy') nature—that is, they usually sort things on the basis of some 'leading qualities': 'No body joins the Voice of a Sheep, with the Shape of a Horse; nor the Colour of Lead, with the Weight and Fixedness of Gold, to be the complex *Ideas* of any real Substances' (3.6.28: 455). But in another sense, nature does not supply us with such criteria, and that is the point that Locke finds worth stressing time and again: while nature provides the material and gives us every reason to sort things into groups on account of their similarities, we have to decide which qualities are essential for species membership. Locke never argues that the material in the form of stable or not-so-stable groups (when nature 'jumbles patterns') already presents a system of objectively given kinds, independent of human classification.[33]

This is not to say that classifications may not become more fine-grained after thorough examination of the experts. In some passages Locke admits as much (3.6.30: 457), but what he refuses is to see this as tracking real essences and their differences:

> And, after all, if we could have, and actually had, in our complex *Idea*, an exact Collection of all the secondary Qualities, or Powers of any Substance, we should not yet thereby have an *Idea* of the Essence of that

33. Pasnau (2011: 646): 'Boyle and Locke count as defenders of natural kinds, inasmuch as they both think that material substances fall into objectively definable clusters. If confronted with our sophisticated modern taxonomies, in either biology or chemistry, they would surely take themselves to be vindicated, judging this richly complex scheme to be precisely the sort of thing they predicted'. But would Locke not also take himself to be vindicated if confronted with the wide-ranging discussions among biologists about what a species is and where to draw the line between a variety, a subspecies, and a species (2% difference in DNA acceptable? 2.5%? 3%?)? He would not be surprised to find taxonomists using different concepts of species (currently there are more than twenty) and different criteria when working with the same observational data, resulting in different taxonomies. Modern examples of not-so-stable patterns are manifold: a 'complex' of yellow wagtails or lesser whitethroats, or a ring species (a chain in varieties) such as gulls in the *Larus* group: are we to consider the complex and the ring as natural kinds, or are the varieties (or subspecies, or perhaps species—depending on one's concept of species) natural kinds? Would Locke believe that, in such cases, there is an objective fact of the matter about where to draw the lines, and that there is one 'unique system of species'? I think the evidence points in the other direction.

> Thing. For, since the Powers, or Qualities, that are observable by us, are not the real Essence of that Substance, but depend on it, and flow from it, any Collection whatsoever of these Qualities, cannot be the real Essence of that Thing. Whereby it is plain, that our *Ideas* of Substances are not *adequate*; are not what the Mind intends them to be. (2.31.13: 383)

If the total set of all qualities gathered in the nominal essence does not give us the real essence, as Locke here says, then neither does a subset of qualities that are regularly coinstantiated:

> one [quality] has as good a right to be put into the complex *Idea* of Substance, wherein they are all join'd, as another. And therefore *different Men* leaving out, or putting in several simple *Ideas*, which others do not, according to their various Examination, Skill, or Observation of that subject, *have different Essences of Gold*, which must therefore be of their own, and not of Nature's making. (3.6.31: 458–59)

Therefore, claims about identity or similarity between structures must, on Locke's view, remains highly speculative. Even in cases where we might be inclined to think that similar things have a similar structure, Locke says that expectations are often frustrated. Locke was perhaps unduly pessimistic about the possibility of knowledge of the inner structures (physical, chemical, genetic) of things. He witnessed progress in natural philosophy himself, and he could expect much progress in times to come.[34] In the context in which Locke was writing, however, realism would mean that real essences are classificatory in their own right, and this is what he emphatically denies: he had rejected substantial forms and was much too skeptical to let microphysical structures play such a role. Locke's central message that 'men make Sorts', and that unsorted, unnamed matter—even if we could inspect it—does not give us those species, loses its pungency if we try to save him from his own skepticism and have him assuming something that undermines that message.[35]

Competing Interests

The author has no competing interests to declare.

34. Anstey (2011); Jacovides (2017); Winkler (2016: 232).

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