Can Matter Think? The Mind-Body Problem in the Clarke-Collins Correspondence (Draft)

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Introduction

Descartes' mind-body dualism is frequently thought to lie at the origins of our concerns about the relationship of the mental to the physical. His stance approach to the issue is very different from that of most current philosophers and he is frequently a target for their criticism, as contemporary philosophers tend not to be dualists but are generally more inclined towards some form or other of materialism. There is, however, another significant difference between Descartes and current discussions: unlike contemporary philosophers, Descartes focused on arguing for substance dualism. The question he addressed at length was the question whether thinking and material qualities could belong to the same substance. He thought it pretty obvious that thinking is not identical with motion or other material qualities[i] and he never addressed other ways in which thinking or consciousness might fail to be a metaphysically fundamental category distinct from material qualities. Contemporary philosophers, however, focus on the relationship between mental and physical states; the classical notion of substance has disappeared from the scene.

The question whether we can establish the immateriality -- and immortality-- of the human soul continued to be very important in the early modern period after Descartes, and other early moderns, such as Locke and Leibniz, also tended to focus on substance dualism. A striking exception is the

correspondence between Samuel Clarke, best known for his correspondence with Leibniz, and Anthony Collins.[ii] Collins was a freethinker, materialist, and deist well-known at the time in England, who was close to Locke during Locke's later years. Their exchange, which took place in 1706-1708, devotes extensive attention to the question whether mental states are a metaphysically fundamental category distinct from physical states, or might arise from or be identical to physical states. The correspondence was part of the thinking matter debate ignited by Locke. Unlike Descartes, Locke thought that substance dualism cannot be established, because he thought that we cannot rule out the possibility that God superadds thinking to matter:

> We have *Ideas* of *Matter* and *Thinking*, but possibly shall never be able to know, whether any mere material Being thinks, or no; it being impossible for us, by the contemplation of our own *Ideas*, without revelation, to discover whether Omnipotency has not given to some System of Matter fitly disposed, a power to perceive and think, or else joined and fixed to Matter so disposed, a thinking immaterial Substance … (Essay IV.iii.6, pp. 540-1).[iii]

Locke's presence can be felt keenly in the correspondence: indeed, both interlocutors invoke various claims of his to support their own.

The heated debate about thinking matter occupied a number of thinkers on both sides of the English Channel over the course of the next century. It has received relatively little attention from historians of philosophy, in spite of its importance at the time, and in spite of the prominence of the mind-body problem in contemporary Anglo-American philosophy.[iv] A reason may be that much of

the discussion was carried out by philosophers who tend to receive less attention than the canonical figures in this period– such as Berkeley, Leibniz or Hume. The Clarke-Collins correspondence was prominent in this debate. It started off with a public letter by Clarke in response to a book by Henry Dodwell who argued that the soul is not naturally, but only supernaturally immortal: God makes it continue to exist after death. Clarke objected and argued that the soul is immaterial and naturally immortal. It set off a public correspondence with Collins, who took Dodwell's side. The collected letters went through 6 editions, and was discussed in at least Britain and Amsterdam throughout much of the 18th century.[v] Leibniz received the correspondence, and commented that he thought Clarke made some good points, while disagreeing with others and thus the Leibniz-Clarke correspondence was ignited.

Clarke makes very clear that his ultimate concern with the issue of thinking matter lies in traditional religious questions about the immateriality and immortality of the soul. In his initial letter to Dodwell, Clarke claimed that an appropriate view of the afterlife is that the human soul is naturally immortal, that is, it cannot go out of existence as a result of natural processes, and this means that it cannot be material.[vi] Later in the correspondence Clarke charges that materialism is a problem for religion because it threatens free will, opens the gates to believing that all rational beings are material, including God, and raises serious problems for the afterlife and "the Justice of future Rewards and Punishments" (W III 851).

Clarke begins with an argument for the immateriality of the human soul that is a version of what Kant in the Second Paralogism called the "Achilles of dialectical inferences in the pure doctrine of the soul" (Critique of Pure Reason A

351). This is an old argument with roots in Plato that can be found as early as Plotinus. It enjoyed considerable popularity in the early modern period.[vii] Taking my cue from Kant, I will speak of the Achilles Argument. The argument is run variously in terms of mental activity generally speaking or particular types of mental processes, and it contends that a mental subject must be simple. In Clarke's version, the argument contends that consciousness or thinking requires that it belong to an "individual being". Otherwise consciousness would be the sum of consciousnesses of the parts, and this is not possible. He argued that matter cannot constitute such a being. Collins agreed that consciousness could not belong to a material subject in virtue of the parts of such a subject being conscious, but he argued that thinking could belong to a material subject in other ways. Perhaps his most interesting response is that thinking could result from, or as we might now say, emerge from, material qualities that characterize the parts of the system of matter. In this paper I will focus on their discussion of emergentism, which takes up the bulk of their discussion of the possibility of thinking matter.

I will first briefly discuss Clarke's Achilles Argument, then I will turn to Collins' proposal of emergentism. I will then examine Clarke's rejection of emergentism, which centers on what I will call The Homogeneity Principle (HP), according to which a quality of a composite whole must be the "sum and result" of qualities of the parts, and those qualities must be of the same kind as the quality of the whole in question.[viii] Clarke argues that this principle applies to what he calls "really inherent qualities", and consciousness is one of those. Collins offers counterexamples to the HP but Clarke argues that they are not examples of really inherent qualities. In the end, Collins accepts a suitably

specific version of HP, but then proposes that consciousness could be identical with a mode of a material quality. At that point the discussion shifts from emergentism to the possibility of identity between consciousness and material qualities. I conclude with a discussion of a disagreement between Clarke and Collins that runs through their exchange about the scope of our knowledge: Clarke is confident that this knowledge is sufficient to rule out various forms of materialism, Collins disagrees.

This correspondence is rather obscure, but it is of special philosophical interest, given its detailed investigation, unusual for the period, into the question whether thinking or consciousness can be or emerge from material qualities. The correspondence offers the possibility of a deeper understanding of how at least some philosophers in the period thought about this aspect of the mind-body problem in this period. The following conclusions are suggested by the exchange between Clarke and Collins. First, Collins proposes emergentism as a way of avoiding the problem of consciousness of a complex subject being the sum of the consciousnesses of the parts. This suggests that the success of the Achilles Argument requires that thinking or consciousness cannot emerge from material qualities. Second, the main obstacle to emergentism turns out to be a type of constraint on causation that was widely accepted during the period. Third, an important disagreement between Clarke and Collins concerns the scope of our knowledge, a disagreement that separated many philosophers in the period, and that turns out to bear significantly on their disagreement about the mind-body problem. Although I will not be able to explore this angle, the discussion of emergentism has clear resonances with current discussions of the mind-body problem.

Before we begin, a few remarks: Clarke and Collins talk about qualities or powers interchangeably, as did Locke. As is typical in this period, they are talking about particular instances of qualities, what nowadays are called tropes: the particular instances of consciousness that belong to a mind, the particular instances of shape, size and motion that can be found in a particular body. Secondly, the discussion takes place in the context of an early modern mechanistic conception of bodies. So the kinds of material qualities that are assumed are shape, size, motion. The status of gravity is explicitly part of what is at stake, and Clarke and Collins disagree about it.

1 Substance Dualism and the Achilles Argument

Clarke states the Achilles Argument as follows:

> For *Matter* being a divisible Substance, consisting always of separable, nay of actually separate and distinct parts, 'tis plain, that unless it were essentially Conscious, in which case every particle of Matter must consist of innumerable separate and distinct Consciousnesses, no system of it in any possible Composition or Division, can be any individual Conscious Being; For, suppose three or three hundred Particles of Matter, at a Mile or any given distance one from another; is it possible that all those separate parts should in that State be one individual Conscious Being? Suppose then all these particles brought together into one System, so as to touch one another; will they thereby, or by any Motion or Composition whatsoever, become any whit less truly distinct Beings, than they were when at the greatest distance? How then can their being disposed in any possible System, make then one individual conscious Being? If you will

> suppose God by his infinite Power superadding Consciousness to the united Particles, yet still those Particles being really and necessarily as distinct Beings as ever, cannot be themselves the Subject in which that individual Consciousness inheres, but the Consciousness can only be superadded by the addition of Something, which in all the Particles must still it self be but one individual Being. (Clarke, p. 730)

Three points about this argument.

(i) In light of their later disagreements, it is worth noting that Clarke displays clear affinities with Leibniz, who expressed his approval of this argument.[ix] Leibniz too held that the subject of perception cannot be material because perception requires a simple subject (Monadology 17).[x] Furthermore, Clarke's contention that bringing particles of matter together won't help generate a genuine individual echoes a similar argument Leibniz offered. He too held that matter is essentially lacking in unity. Consider two diamonds, he wrote to Arnauld; when they are separated in space they are not one being. If we bring them close together, even if they are set in the same ring, they still do not constitute a single substance.[xi]

(ii) This last point about the nature of matter is very important to the argument: like Leibniz, (and Descartes and various others in the period) Clarke thought that matter cannot constitute a genuine individual, for matter is always an aggregate consisting of actually distinct parts. In Clarke's terms, a piece of matter could never be an "individual subject", and it could never have the type of unity requisite for a subject of consciousness. This is a view Collins questions. The issue of the nature of matter in the correspondence, however, is the subject for another time.[xii]

(iii) It is tempting to see Clarke's argument as a unity of consciousness argument of the kind Kant discusses in the Second Paralogism. But it is worth noting that Clarke is remarkably quiet about what feature of consciousness requires what he calls an individual subject. In the Second Paralogism Kant explains the idea of the unity of consciousness employed in the argument as follows:

> For suppose it be the composite that thinks: then every part of it would be a part of the thought, and only all of them taken together would contain the whole thought. But this cannot consistently be maintained. For representations (for instance, the single words of a verse), distributed among different beings, never make up a whole thought (a verse), and it is therefore impossible that a thought should inhere in what is essentially composite. It is therefore possible only in a *single* substance, which, not being an aggregate of many, is absolutely simple (A 352).

The idea of this argument is that the parts of a unified mental representation cannot be distributed over the parts of a composite subject, and for this reason the subject of thought must be simple. Clarke does state that consciousness cannot be the sum of a multitude of consciousnesses, but he never explains why this is so. And often the two interlocutors talk about the absurdity of the parts of a material subject of consciousness being conscious rather than about the problems for an aggregate consciousness (See for instance Collins at W III 806). Clarke identifies this claim with an admission that consciousness is not the sum of a multitude of consciousnesses (W III 798).

Collins agrees that consciousness cannot be the sum of consciousnesses of the parts of its subject, and so he does not probe him on this claim. He does ask Clarke what he thinks consciousness is and questions the idea that it requires an

individual subject. But in response to such questions Clarke does not explicitly appeal to the kind of unity of consciousness considerations Kant discusses and that can be found in other early moderns.

Clarke does offer some clues about his conception of consciousness: when he offers the Achilles Argument, he distinguishes this argument which focuses on "bare Sense or Consciousness it self" from arguments that appeal to the higher capacities of the human mind: "its noble Faculties, Capacities and Improvements, its large Comprehension and Memory; its Judgment, Power of Reasoning, and Moral Faculties" (W III 730). But what does Clarke mean by "consciousness"? He writes:

> *Consciousness*, in the most strict and exact Sense of the Word, signifies neither a *Capacity of Thinking*, nor yet *Actual Thinking*, but the *Reflex Act by which I know that I think, and that my Thoughts and Actions are my own and not Another's*. But in the present Question, the Reader needs not trouble himself with this Nicety of Distinction; but may understand it indifferently in all or any of these Significations; because the Argument proves universally, that Matter is neither capable of this *Reflex Act*, nor of the first *Direct Act*, nor of the *Capacity of Thinking* at all. (W III 784).

So Clarke offers a very specific characterization of consciousness as awareness that one's mental acts are one's own, but at the same time he does not think his argument focuses on this specific conception of consciousness; it concerns thinking in a very broad sense. Later he writes that he does not <u>need</u> to explain what consciousness is because "Every Man feels and knows by Experience what Consciousness is, better than any Man can explain it: Which is the Case of all

simple Ideas" (W III 790). And in the same vein he writes that we have "Intuitive Certainty" that consciousness cannot be a mode of motion (W III 837).[xiii]

So Clarke does not offer us any real illumination on the question what about consciousness requires an individual subject. Unfortunately, since Collins accepts that consciousness cannot be the sum of a multitude of consciousnesses his probing on this issue is limited.[xiv]

2 Emergentism

Collins thinks that he can save materialism and avoid the problems raised by the Achilles Argument if the consciousness of a composite material subject results from other qualities that belong to the parts. In that case, the consciousness of the whole will not consist of a multitude of consciousnesses and the divisibility of matter poses no problem. In contemporary terms, one might say Collins proposes a type of emergentism. Using the term loosely, I will mean by emergentism the following: a configuration of qualities gives rise to a genuinely different kind of quality.[xv] Contemporary philosophers distinguish a variety of forms of emergentism, but I will not attempt to try to identify just what type of emergentism Collins' proposal corresponds to. I will, however, address a striking ambiguity in the discussion of Collins' proposal.

Collins introduces emergentism as follows. He contends that we frequently encounter examples of qualities or powers that belong to the parts of a complex material system give rise to novel qualities or powers in the whole. As examples he offers the scent of a rose, the harmony produced by a musical instrument, the capacity of a clock to tell time, the development of sensation in a chick in an egg. His first example he describes as follows:

> And Matter of Fact is so plain and obvious, that a Man cannot turn his Eye but he will meet with Material Systems, wherein there are individual Powers, which are not in every one, nor in any one of the Particles that compose them when taken apart, and considered singly. Let us instance for example a *Rose*. *That* consists of several Particles which separately and singly want a Power to produce that agreeable Sensation we experience in them when united. And therefore either each of the Particles in that Union contributes to the Individual Power, which is the external Cause of our Sensation, or else God Almighty superadds the *Power* of producing that Sensation in us upon the Union of the Particles. And this, for ought I can see, may be the case of Matter's Thinking. Those Particles which compose the Brain, may under that Modification either have the Power of Thinking necessarily flowing from them, or else may have the Power of Thinking superadded to them by the Power of God, though singly and separately they may not have the Power of Thinking. (Collins, W III 751-2, emphasis added).

So the parts of the rose taken by themselves lack the power to produce the sensation of scent in us, but, Collins proposes, either the power of the whole rose to produce the sensation of smell in us results from the qualities of the parts, or God superadds that power. The discussion focuses on the former possibility, and so will I. So Collins suggests that a genuinely new power or quality can result from a configuration of powers or qualities of the parts of a material system.

Clarke rejects emergentism using the following strategy. He introduces the Homogeneity Principle and a division of qualities into three kinds. The HP

applies to the first type of quality, what Clarke calls "really inherent qualities"; consciousness is one of these. He argues that Collins' counterexamples are not really inherent qualities, but fall under the second or third type, and so they do not count against the HP. Clarke states the HP as follows:

> … [I]t is evident at first sight that every Power or Quality that is or can be *inherent* in any System of Matter is nothing else than the Sum or Aggregate of so many Powers or Qualities *of the same Kind*, inherent in all its Parts. The *Magnitude* of any Body is nothing but the Sum of the Magnitudes of all its Parts. Its *Motion*, is nothing but the Sum of the Motions of all its Parts. And if *Cogitation* in like Manner could possibly be a Quality really *inherent* in a System of Matter, it must likewise necessarily be the Sum and Result of the Cogitations of the several Parts: and so there would be as many distinct Consciousnesses as there are Particles of Matter, of which the System consists; which I suppose will be granted to be very absurd. Compositions or Divisions of *Magnitude*, varied in infinite Manners to Eternity, can produce nothing in the whole System no Quality or Power whatsoever but mere Magnitude; Compositions and Variations of *Motion*, nothing but *mere Motion*. (Clarke, 759, emphasis added)

Obviously, crucial to the HP is the question when qualities count as being of the same kind. Clarke is aware of this problem and notes that "the Terms, Kind and Species, and of the same Kind or Species, are very ambiguous terms and used in great Variety of Significations" (W III 827). The two correspondents discuss the issue at some length. Clarke explains that by qualities of the same kind in the HP he is not thinking of qualities of the same "*species specialissima*" but "*species generaliores*". For example, an instance of a specific type of shape must result

from shapes, which may, however, be other species of shapes. They discuss the example of roundness: it is not the sum and result of roundnesses (it is not the case that "*Globosity* is made up of *Globosities*", Clarke writes) but "a *whole Round Figure* must necessarily be made up of *Pieces of Roundness*, which are all of the *same Kind* with it" (W III 828). And a magnitude of a foot "is not an Aggregate of *Cubic Feet*, but of other *Magnitudes* which constitute a Cubic Foot" (W III 828). Figure and motion, however, are not of the same species as thought at all, except in the sense that they are all qualities, Clarke notes. So they do not share a *species generalior* that is a subspecies of quality, and this is what Clarke requires for the HP.

This appeal to a classification of (really inherent) qualities raises further questions. Clarke's use of traditional Latin terminology means an implicit appeal to the tradition of classification under Aristotle's categories. But in the present context one might well want a defense of the classification of qualities into different types. Clarke does not offer anything of the sort. And we should probably not expect such a defense since, as we shall see later, he held that we know intuitively that consciousness and motion are different and have nothing in common, and this may manifest a broader view of his on the matter of the differences between qualities.

So the first component of Clarke's response to emergentism is the HP. In addition, he offers a three-part distinction of qualities or powers, similar to, but not identical with Locke's tripartite division in his discussion of secondary qualities in Essay II.VIII. Locke's division was limited to qualities of bodies, but Clarke's is not; it is intended as an entirely general classification of qualities. The first type of quality consists in really inherent qualities, which include

consciousness, but also size and motion. To these the HP applies: configurations of size give rise to sizes, similarly for motions (W III 759).[xvi] HP does not apply to the two other types of qualities, and Clarke argues that Collins' counterexamples all belong to the second and third types of qualities. Here is his description of these types:

> *Secondly*, Other Qualities there are, which are *vulgarly* looked upon as *Individual Powers*, resulting from and residing in the whole System, without residing particularly in each or any of its single and original Parts; such as are the *Sweetness* of certain Bodies, their *Colours*, etc. But this is only a *vulgar* and very *gross* Error. For neither do these Qualities reside in, or at all result from, the whole System, in any any Sense *proper Sense*: neither in *any Sense at all,* in which they can be ascribed to that Body or System of Matter to which they are vulgarly supposed to belong, are they truly *Individual Powers*. In the *first* place they are not *really Qualities* of the System, and evidently do not at all in any *proper Sense* belong to it, but are only *Effects* occasionally produced by it in some other Substance, and truly Qualities or Modes of that other Substance in which they are produced: thus the *Sweetness of a Rose*, is well known not to be a Quality really inhering in the Rose; but a *Sensation*, which is merely in him that smells it, and a Mode of the *Thinking Substance* that is in the Man… And the same may be said of *Heat, Light, Taste, Sound* and all those others which we call *Sensible Qualities*. *Thirdly*, other Powers, such as *Magnetism*, and *Electrical Attractions*, are not *real Qualities* at all, residing in any Subject, but *merely abstract Names* to express the *Effects* of some determinate Motions of certain Streams of Matter; and *Gravitation* itself, is not a *Quality inhering in*

> Matter, or that can possibly *result* from any Texture of Composition of it; but only an *Effect* of the continual and regular Operation of some other Being upon it; by which the Parts are all made to tend one towards another. (W III 759-760).

So Clarke divides our ordinary-life attribution of a quality to a substance into three types:

(i) Qualities that we attribute to a substance and that genuinely inhere in that substance. To these the HP applies;

(ii) Qualities that we attribute to a substance but that are really effects it produces in another substance. Secondary qualities belong to this category, such as the sweetness of a rose, which is really a sensation in us.

(iii) For the third type Clarke does not offer a clear definition. It seems like a fairly loosely defined category that applies when qualities don't belong to the first two types. What is clearly crucial for Clarke is that this category covers cases where we attribute qualities to a substance that are not really inhering qualities. We use "merely abstract names" for complex phenomena. He writes that this category comprises abstract names we use "to express the *Effects* of some determinate Motions of certain Streams of Matter", but the category is broader than that. Gravity, for Clarke, is the result of an operation by God on matter. He also writes that when we talk about a collection of qualities in a substance as if one thing we really have an abstract name at hand.

The label "really inherent" for the first type is significant: Clarke is distinguishing attribution in a broad sense from genuine inherence. Our attributions of the other types of qualities do not reflect genuine inherence of a corresponding quality in the substance in question. Clarke's rejection of the

example of the rose illustrates the point. In classical mechanistic fashion, he distinguishes between the sensation of scent in us and physical causes in the rose, and he analyzes the power in the rose to produce the scent in us in terms of a configuration of primary qualities, sizes and motions (W III 790).[xvii] Indeed, he identifies this power with the collection of sizes and motions. There is then in his view no genuine new quality in the rose, just this collection of qualities of the parts.[xviii] In the case of the second and third type, we may make attributions of qualities that are quite different from the qualities of the parts that underlie them, but such attributions do not reflect genuinely inhering qualities.

So Clarke's strategy is to argue that Collins' counterexamples are not instances of really inherent qualities. Consciousness, however, is such a quality and since HP applies to such qualities, the counterexamples are irrelevant. But why should one accept the Homogeneity Principle?

3 Clarke's Defense of the Homogeneity Principle

Consider the following statements in defense of the HP:

> Whatever can arise from, or be compounded of any Things; is still only those very Things, of which it was compounded … For instance, All possible Changes of *Figure*, are still nothing but *Figure*; [All possible Variations, Compositions and Divisions of *Magnitude*, are still nothing but *Magnitude*;] … All possible Compositions or Effects of *Motion* are nothing but *mere Motion* … And how many other Qualities soever, *known* or *unknown*, the Particles of Matter be supposed to be indued with; those Qualities can never in any Composition or Division produce any new

> Power specifically different from themselves, unless a *Cause* could give more to the *Effect* than is in itself. (W III 788)[xix]

> And this is evidently making a *Whole* bigger than *All its Parts*, that is, containing something different from, something over and above, something more than All its Parts taken together; nay such a Whole, the Sum of whose Parts neither make up the Whole itself, nor any Part of it, which is a plain Contradiction. (W III 833)

Clarke's defense relies on two ways of conceiving the relationship between qualities of the whole and those of its parts: he conceives of the qualities of the whole as the sum of the qualities of the parts, and as their effect – without distinguishing between these two ideas. So he thinks of emergence both as the qualities of the parts constituting the quality of the whole and as causing the qualities of the whole. I will return to this point below. Furthermore, Clarke's defense of the HP contains two strands. The first relies on constraints on causality commonly accepted in the period, the latter turns on the notion of inherence. The concerns about inherence constitute the main objection against the possibility of superaddition by God. The causal constraints are central in Clarke's dismissal of emergentism, where, rather than being added by God, thinking results from a configuration of material qualities.[xx] And so the causal constraints are particularly important to our concerns.

In his A Demonstration of the Being and Attributes of God (DBAG), Clarke relies on the causal constraints when he offers an argument for God's existence that is quite similar to Locke's argument in Essay IV.X:

> Firstly, if Perception or Intelligence be any real distinct Quality or Perception and not a mere Effect or Composition of unintelligent Figure and Motion, then being endowed with Perception or Consciousness can never possibly have arisen purely out of that which itself had no such Quality as Perception or Consciousness, because nothing can ever give to another any Perception which it has not either actually *in itself* or at least *in a higher Degree*. This is very evident because if anything could give to another any Perfection which it has not itself, that Perfection would be caused absolutely by Nothing, which is a plain Contradiction. (DBAG p. 40)

Here Clarke speaks of what I will refer to as transeunt causation, causing an effect <u>in another</u>. As in the case of Locke, he is arguing that God must be a thinking substance in order to explain the existence of thinking human beings. But consciousness is supposed to result from a configuration of qualities in the parts of the subject itself.

This type of causal constraint is widely accepted in the early modern period before Hume, but its use is perhaps better known for instances of transeunt causation. A prominent place is Descartes's Third Meditation, where he wrote that the cause (the complete efficient cause, that is) must contain at least as much reality as the effect. Descartes focuses on levels of reality or perfection, and Clarke does so in the context of his discussion of the nature of God as the quote above from the DBAG illustrates.[xxi] But when he discusses the issue of emergentism in the correspondence with Collins, Clarke does not talk about levels of reality or perfection. Rather he focuses on the question whether qualities are sufficiently <u>similar</u>. He often illustrates the HP by saying that

compositions of motion or magnitude will only result in more motions or magnitudes and cannot produce qualities of a different kind.[xxii]

What is the intuitive appeal of these causal constraints? The model of causation at work is of course intensely pre-Humean: causation is not merely a matter of constant conjunction, and it is also not simply a matter of causal laws. The model is made intuitive by examples like heat (an example Descartes uses) or motion: one ball makes another ball move, but the first ball must have at least as much motion (or at least as much force, Leibniz would say) as the second ball. One body heats up another one, but it can't produce more heat in the second body than it contains in itself. If that were to happen some of the heat would come from nothing. It is a model that relies on genuine causal agency, and the idea that in causation some entity is produced. The model suggests some stuff flows from the agent to the patient, or is passed on from one to the other. The transmission model finds clear expression in late scholasticism. So we find Suarez writing that causation "is nothing other than that influx or concourse by which each cause in its kind actually flows [*influit esse*] being into the effect."[xxiii] Clarke speaks of the cause giving to the effect (W III 788).[xxiv] Causal constraints like the HP embody the idea that a quality that is produced is an entity that must come from somewhere, and all of it must come from somewhere. Otherwise it, or some of it, comes from nowhere, which is impossible. Crucial to Clarke's use of the constraints is that he sees the constraints not as merely quantitative, his focus is on qualities that are different in kind: if the purported resulting quality is qualitatively radically different from the purported originating qualities, it comes from nowhere.

There are various aspects of Clarke's use of causal constraints that may strike one as puzzling. First, as I noted, a difference between Clarke's use of the HP in rejecting emergentism and Descartes's better known use of causal principles is that the latter is talking about transeunt causation: causation of an effect by a subject in a distinct subject of which it is not a part. The examples of heat and motion make qualitative and quantitave constraints on causation intuitive for this type of causation. But Clarke talks about the production of a quality of a composite by qualities of the parts of that same composite. Furthermore, he often talks as if obedience to the HP is a matter of simple addition rather than causation, and he does not separate the two ideas. In other words, he seems to conflate two models of emergence: one sees the emerging quality as constituted by the underlying qualities, the other as caused by them.

These would seem to be two very different models of emergence. But the two are not so far apart given the model of causation as a kind of transmission of stuff in a broad sense of stuff: if the causes are the qualities of the parts and the effects the qualities of the whole, one can see how the qualities of the parts can be seen as giving to the whole and also be seen as what adds up to qualities of the whole. The magnitudes of the parts add up to the magnitude of the whole, and one can perhaps see them as giving to the whole (although this metaphor strikes me as more apt for transeunt causation) so that the magnitude of the whole results.[xxv]

A different concern arises from the fact that Clarke was a dualist who believed in mind-body interaction. So one might well ask: what about the production of mental states by physical states and vice versa? Doesn't this violate the causal constraints given the dissimilarity between the two? Collins

does query Clarke about interaction, which he rightly points out is a difficult issue for dualism. Clarke does have a way of reconciling HP and mind-body interaction, however. He writes that bodies can produce sensations only because the power of thinking already exists in the mind:

> For the Power that is in one Substance, of exciting different Modes in another Substance; presupposes necessarily in that other Substance the *Foundation* of those Modes. Thus in the Case of all the *sensible Qualities* of Bodies; the *Power of Thinking* is beforehand in that Being, wherein those Qualities excite or occasion *different Modes* of Thinking (W III 797)

So it is not the case that a bodily process produces by itself a novel quality in the mind that is quite different from the material qualities that are its cause. That would be a violation of the causation constraints and the resulting sensation would come from nothing, its occurrence would not be (fully) explained. Instead the bodily quality results in the sensation in the mind because the mind contributes to the production of the sensation in virtue of having a power of thinking already in it. In other words, the full explanation of the occurrence of the sensation appeals both to the action the body and to the nature of the mind, the subject of the resulting state. So for Clarke the sensory state does not come from the bodily state in a way that requires that the bodily state be like the sensation in the sense required by the HP.[xxvi]

While the HP and similar early modern constraints on causation have intuitive force given a certain model of causation, it is worth contemplating just how strict these constraints on causality are from a historical perspective. The early modern mechanists thought of all physical processes as rearrangements of particles of a homogenous matter, and for them this was a great virtue as it

meant that their picture of the physical world was marked by a high level of simplicity and intelligibility. They repeatedly claimed that their model of causation in the physical world was more intelligible than that of the scholastics.[xxvii] Thus Descartes compared his own mechanism to the scholastics as follows:

> We understand very well in what way the various local motions of one body are brought about by the different size, shape and motion of the particles of another body; but we can not at all understand in what way those very same things (namely size, shape and motion) can produce something else that is entirely different from them in nature, as are those substantial forms and real qualities, which many suppose to be in things; nor in what way those qualities or forms then have the power to bring about local motions in other bodies (Principles IV 198)

In his treatise The World Descartes offers the example of a fire: he understand the process in terms of mechanistic qualities, and criticizes the Aristotelian who admits interaction between mechanistic qualities and secondary qualities like heat and color realistically understood (AT XI 7-10/CSM I 83-84). So compared to the early modern mechanistic picture, the Aristotelian view of the world presents a more hybrid and more opaque array of causal processes.

Particularly interesting in relation to our concern with emergentism is the scholastic conception of the foundations of various kinds of qualities in the physical world. They saw the elements as fundamental, and these were characterized by what they called *primae qualitates*, hot and cold, dry and wet. Other qualities, commonly labeled *qualitates secundae*, which included tactile qualities and nontactile sensible qualities, like colors, smells, arise from the

primae qualitates, but in ways that were not really made clear.[xxviii] This is a kind of emergence that would be ruled out by Clarke's HP. So the similarity constraints on causation in Clarke and other early moderns do not merely contrast with Humean causation, but also with the earlier Aristotelian conceptions. By contrast with the later Humean picture, the early modern mechanists explicitly aimed to provide causal models that really explain and make intelligible the occurrence of an effect in light of the cause, and they thought their model was superior in this regard to the Aristotelian model.

One way to reject Clarke's position is to reject his qualitative constraints on causation. One could do this by becoming a Humean about causation. Collins does not do this, and the world had to wait another while for Hume. Instead, remarkably, in his third letter Collins writes that he does accept the HP– if understood properly. He distinguishes between generical and numerical powers:

> By *Numerical Powers* I understand such Powers as Motions and Figures of the same Species. The Power of the Eye to contribute towards seeing, is a Species of Motion, and the Roundness of a Body is a Species of Figure. By *Generical Powers* I understand all the several Species of *Numerical Powers*; as Motion signifies all the various Species of Motion, and Figure all the various Species of Figure. (W III 805)

He then claims he does accept HP if applied to generical powers, but not if applied to numerical powers (W III 806): the shape of a body is the sum of the shapes of the parts, but the roundness of a body is not the sum of the roundnesses of the parts.

Clarke rejects Collins' distinction between generical and numerical powers on the ground that generical powers are universals and in things powers are always numerical (W III 829). But Collins had said so himself (W III 806), and in fact the point Collins is trying to make is what Clarke himself has in mind when he writes that "qualities of the same kind" refers to qualities that belong to the same "*species generalior*". So at this point they seem to agree on the following version of the HP: the quality of a composite subject must be the sum and result of qualities of its parts that belong to the same *species generalior* as the quality of the whole they constitute.

Collins has not suddenly become a dualist, however. He makes a new materialist proposal: he proposes for consideration the possibility that consciousness might be a modification of motion in the way in which roundness is a mode of figure, that is to say, it is a specific type of motion. And he proposes that this particular type of motion results from a combination of motions of the parts in accordance with the HP. Collins insists that his point is not to claim that consciousness really is a type of motion. Rather his point is to consider the view that consciousness is a mode of some power or other of matter, but for the sake of argument he considers the specific possibility that consciousness is a mode of motion (W III 806, 859).

This move substantially shifts the debate from the question of any sort of robust emergentism to a proposal of identity of consciousness with a material quality, and Clarke responds accordingly.[xxix] And so in the end for both Clarke and Collins the HP rules out emergentism: a configuration of qualities can give rise only to qualities of a complex whole that are suitably similar, and so no

genuinely novel qualities can result from a configuration of qualities of the parts of a complex subject.

4 The Limits of our Knowledge

Collins' change of course comes with an element of constancy, however: in true Lockean fashion, throughout the exchange he appeals to the limits of our knowledge. Crucial to Locke's claim that we cannot rule out the possibility that God superadds thinking to matter was his view that we do not know enough about the nature of thinking or material substance to rule out this possibility. Collins goes beyond Locke when he suggests that thinking might result from material qualities. Collins claims that Clarke is too optimistic about the scope of our knowledge in various ways:

1) He claims that Clarke fails to show that his tripartite division of qualities is exhaustive. There may be really inherent qualities that do not obey HP (W III 767). The result of this part of the discussion is a disagreement about the burden of proof: should Clarke show his division is exhaustive, or should Collins show it is not (W III 803-804)? And Clarke responds to this objection that he has argued that the HP applies to really inhering qualities. Furthermore, we saw that in the end Collins grants the HP. So the role of this claim of modesty about our knowledge is superseded by later developments in the discussion.

2) Clarke presupposes a standard list of primary qualities for matter, he discusses size, shape and motion. But sometimes Collins suggests that there may be types of material qualities we are ignorant of (W III 803-4, 806). Collins does not elaborate on this suggestion as much as he might. But in light of the

changing conceptions of matter over the course of the centuries, this surely is a point that has significant force. I will return to it below.

3) Collins suggests that we do not know enough about consciousness or motion to rule out the possibility that consciousness is a mode of motion. He writes "…Consciousness, of whose Nature we are ignorant, may inhere in a System of Matter, without being the Sum of the Consciousnesses of the Parts." (W III 806, emphasis added). He also thinks Clarke is too optimistic about our knowledge of motion. He writes that Clarke had failed to consider particular modes of motion, and that we do not have ideas of all the types of motion (W III 806). This is not the place for a full treatment of Clarke and Collins's discussion of the possibility that consciousness is a type of motion, but I wish to explore briefly this discussion insofar as it concerns the issue of our knowledge of motion and consciousness.

As I noted before, Clarke thought we all know what consciousness is, and he thinks the ideas of consciousness and motion are simple ideas we can't explain. He thinks that while there may be limits to our knowledge of motion and consciousness, our ideas of motion and consciousness are clear enough to rule out that consciousness is a type or mode of motion. He returns to his claim that consciousness and motion have no common genus. He concludes from this that we have intuitive certainty that consciousness is not a mode of motion, just as we know that "a *Circle* or a *Cube* is not a *Thought*, or that an *Acute Sound* is not a *Purple Colour*" (W III 837). He also specifically addresses Collins' claim that consciousness could be a specific mode of motion:

> Every *Mode* of any *Power* or *Quality*, is nothing else but *That Power* or *Quality*, of which it is a *Mode*, understood with some particular Limitation;

> that is to say, it is nothing but a *particular Instance* of that *general Power* or *Quality*; nothing but the *general Power* or *Quality*, considered under this or that *particular Modification*. *Blue* and *Red*, and all other *Modes* of *Colour*, are nothing but several particular *Colours*; and can contain nothing in their Idea beyond the *Genus* of *Colour*… Now if *simple Ideas* be the Foundation of our Knowledge; and *clear and distinct Perception* of the *Agreement* or *Disagreement* of those Ideas, be the best and greatest *Criterion* of Truth, that our Faculties inable us to attain to; then it is as evident as any Truth in the World, that *Consciousness* cannot possibly be a *Mode of Motion*. For I have as *clear and distinct* a *Perception*, that the Idea of *Consciousness* contains something in it besides and beyond the *Genus of Motion*, as I have that it contains something in it beyond the *Genus of Figure*. (W III 836-837)

Clarke surely has a point in saying that specific types of motion will be variations of the general kind and that at the same time consciousness does not seem to be such a variation. The possibility that consciousness might be a type of motion strikes me as not particularly promising, it seems hard to make sense of this identity. Clarke thinks the same goes for figure, and this too seems plausible: it strikes me as hard to make sense of such an identity.

Collins does not agree with this analysis. Whose side one takes on this issue might depend on whether one minds an identity between items where the identity does not seem at all intelligible. If causal connections can be brute and come without providing an understanding why or how A causes B, similarly one might an identity could be brute. We might have no understanding how A and B could be identical, but we might not regard this as an obstacle to identity. Indeed, in light of this consideration it is striking that Collins proposes an

identity of consciousness and motion, qualities that surely are intuitively quite dissimilar, while granting the HP, which rules out that consciousness emerges from motions.

Collins was unimpressed by Clarke's arguments to the effect that we know enough to rule out an identity between consciousness and motion (W III 865-870). But even if we accept Clarke's claim that thinking cannot be motion or figure, we may refuse to follow him all the way. Clarke makes a much stronger claim: he thinks that the arguments that show that thinking cannot be a mode of motion also show that "it is not possible for *Thinking* to be a *Mode of Figure*, or of any other *known* Property of Matter*:* And also that it is not possible for it to be a *Mode* of any *unkown* Power of Matter, which in the general is *void of Thinking*" (W III 836). S he thinks he can rule out that consciousness can be a mode of any type of material quality.

I do not see what justifies this optimism.[xxx] Clarke is right to note that one does not necessarily need to know everything about a quality in order to rule out its identity with another quality. But the broad claim that he has refuted thinking being a mode of any kind of material quality requires more than refuting its identity with some particular types of qualities. Clarke would either need to show that he has a full list of the qualities of matter, or, alternatively, he could argue that something about the nature of matter in general means that whatever qualities it might turn out to have cannot be candidates for identity with thinking.

The Achilles Argument is such an argument: it contends that the nature of matter is such that it cannot be the subject of thinking because matter is divisible. Collins's emergentism was meant to get around this by arguing that

consciousness might emerge from material qualities and thus need not be the sum of the consciousnesses of the parts of a material subject. This approach invites a discussion of the relationship between consciousness and particular types of material qualities. But now what Clarke seems to need is either confidence that we know all the particular types of material qualities or an argument that restricts what kinds of material qualities are possible. On either of these approaches an argument for dualism risks being time-bound as a result of the changing conceptions of matter. At this point Collins' claim that there might be material qualities that are unknown to us is significant. Over the history of philosophy and science conceptions of matter have changed radically. No doubt philosophers like Descartes or Clarke would be bewildered by current scientific conceptions of matter. Indeed, in Clarke's own day the question of the nature of gravity troubled the waters on the nature of matter, and this question is among the ones Clarke and Collins debate.

Conclusion

The Clarke-Collins correspondence stands out in the early modern period for its detailed discussion of the possibility that consciousness emerges from material qualities. An examination of the exchange between Clarke and Collins reveals various significant ideas about how emergentism fits into an early modern context. The correspondence begins with Clarke offering the Achilles Argument, an argument that enjoyed considerable popularity in the early modern period. In Clarke's version, the argument contends that matter is divisible, but consciousness must belong to a simple subject because it cannot be the sum of a multitude of consciousnesses. So consciousness cannot belong to a

material subject. Collins accepts the impossibility of consciousness being the sum of a multitude of consciousnesses but suggests that the problem is avoided if consciousness emerges from a configuration of material qualities of the parts. This part of the exchange points up a significant issue for the success of the Achilles Argument in establishing the immateriality of the mind: it assumes the impossibility of emergence.[xxxi]

Clarke's Homogeneity Principle is central to the discussion: a quality can only result from qualities that are like it. In the end, the qualitative constraint on causality embodied in the HP rules out any substantive form of emergentism for both correspondents. During this period the constraints on causality were particularly strict compared both to previous Aristotelian conceptions as well as later Humean conceptions. Given the widespread acceptance of this kind of constraint by early moderns, its role on the exchange between Clarke and Collins suggests that for other early moderns also such constraints are likely to pose a serious obstacle to emergentism. Clarke's HP cannot be separated from his notion of an inherent quality: not just any attribution of a quality to a substance corresponds to that substance having a really inherent quality. Many of our attributions are abstract names for complex phenomena consisting of a collection of qualities within the substance in question or even belonging to several substances. HP applies to really inherent qualities and consciousness is one of these. So many purported counterexamples, according to Clarke, miss their target.

Finally, a consistent current of disagreement lies in Clarke and Collins' differing views about the limits of our knowledge. This disagreement is particularly significant in their assessments of the possibility that consciousness

might be a mode of a particular type of material quality. Clarke is optimistic that we know enough to rule out the identity of consciousness with a mode of motion, or any other kind of material quality. Collins' Lockean modesty about the scope of our knowledge leads him to say that there may be qualities of matter that we do not know about, and it leads him to go beyond Locke in denying that we can rule out an identity of consciousness with material qualities, his example is motion. This type of disagreement about the scope of our knowledge and what it means for what we can show about the relation between the mental and the physical is an important one in the early modern period. It clearly separates, for instance, Locke from Descartes, but also from Leibniz.

This examination of the disagreement between Clarke and Collins on the possibility of thinking matter is far from complete. But I hope that the reader will be convinced that the correspondence is rich in philosophically interesting considerations about this issue that preoccupied many thinkers in the early modern period. Furthermore, it offers insight into several important and interesting lines of thought that were shared by various philosophers in this period, and deserves much further investigation. Finally, there are significant resonances with current debates about the mind-body problem, which I have not had the opportunity to explore.

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[i] Descartes did not think he needed to argue that thinking is not motion; if one withdraws from the senses and uses one's intellect properly it should be obvious. See the Sixth Replies to the Meditations, CSM II 287, and 297/AT VII 425, 441). Reference to Descartes' writings are as follows: AT: Charles Adam and Paul Tannery ends, curves de Descartes, 11 vols. (Paris: CNSR and Vrin: 1964-1976);

CSM: The Philosophical Writings of Descartes, 3 vols. (Cambridge: Cambridge University Press, 1985-1991).

[ii] The correspondence can be found in Samuel Clarke, The Works, (W), (London, 1738, reprint, Garland Publishing, New York 1978) vol. III.

[iii] Locke did think that we can establish that God is an immaterial thinking substance. See An Essay Concerning Human Understanding, (Peter H. Nidditch ed., Clarendon Press, 1975) IV.X.

[iv] But see John W. Yolton, Thinking Matter: Materialism in Eighteenth-Century Britain (Minneapolis: University of Minnesota Press, 1983) and Locke and French Materialism (Oxford: Oxford University Press, 1991).

[v] Robin Attfield, "Clarke, Collins and Compounds", (Journal of the History of Philosophy, 15, 1977), pp. 45-54), p. 47.

[vi] While for Clarke the soul is naturally immortal, he thinks its existence always depends on God, who can annihilate it at any time, a view commonly held in the period about all creatures (W III, 722).

[vii] For an extensive history of the argument, see Ben Lazare Mijuskovic, The Achilles of Rationalist Arguments. The Simplicity, Unity, and Identity of Thought and Soul from the Cambridge Platonists to Kant: A Study in the History of an Argument, (The Hague: Martinus Nijhof, 1974).

[viii] I owe the term to Ezio Vailiati, who speaks of the principle of homogeneity. Vailati offers some discussion of Clarke and Collins' exchange about thinking matter in his "Clarke's Extended Soul", Journal of the History of Philosophy, 1993, pp. 387-403, and Leibniz and Clarke: A Study of Their Correspondence, Oxford University Press, 1997, pp. 53-77.

[ix] André Robinet, Correspondence Leibniz-Clarke; présentée d'après les manuscrits originaux des bibliothèques de Hanovre et de Londres, (Paris: Presses Universitaires de France, 1957), p. 21.

[x] For discussion of these issues in Leibniz see Margaret Wilson, "Leibniz and Materialism", in Ideas and Mechanism: Essays on Early Modern Philosophy, Princeton University Press, 1999, and Marc Bobro and Paul Lodge. "Stepping Back Inside Leibniz's Mill," The Monist 81 (1998), 554-573.

[xi] G II 76, AG 79. For references to Leibniz' work in the original languages see Die Philosophischen Schriften von Gottfried Wilhelm Leibniz, C.I. Gerhardt ed., 7 vols., Berlin, Wiedmann, 1875-90, repr. Hildesheim, Georg Olms, 1978 (G). Translations can be found in G.W. Leibniz, Philosophical Essays, Roger Ariew and Daniel Garber eds., Indianapolis, Hackett, 1989 (AG).

[xii] I discuss this issue at length in "The Achilles Argument and the Nature of Matter in the Clarke-Collins Correspondence", forthcoming in The Achilles of Rational Psychology, Tom Lennon en Robert Stainton eds., Springer Verlag. For extensive discussion of the relevant issues about the notion of matter in the period, see Thomas Holden, The Architecture of Matter, Clarendon Press, 2004.

[xiii] I discuss the question what Clarke means by consciousness at greater length in "The Achilles Argument and the Nature of Matter in the Clarke-Collins Correspondence". As I discuss there, this question is connected to the question what Clarke's precise ground is for the impossibility of consciousness belonging to a composite. In the tradition one can find two types of Achilles Argument: the type discussed by Kant which is based on the need to unify the contents of consciousness and a different type that relies on an analysis of self-

consciousness. Clarke's definition of consciousness as "the *Reflex Act by which I know that I think, and that my Thoughts and Actions are my own and not Another's"* suggests this latter version, but his claim that this definition is not crucial renders that interpretation uncertain.

[xiv] Clarke and Collins do engage in an exchange about the question whether they are talking about actual or potential consciousness. I don't think this discussion adds anything substantial to the debate.

[xv] For discussion of contemporary notions of emergentism, see Timothy O'Connor and Hong Yu Wong, "Emergent Properties", The Stanford Encyclopedia of Philosophy (Winter 2006 Edition), Edward N. Zalta (ed.), <http://plato.stanford.edu/archives/win2006/entries/properties-emergent/>.

[xvi] Clarke also uses examples of sounds, color, smell, but it is problematic for him to do so given his mechanistic analysis of secondary qualities and given that he immediately classifies sweetness and color as belonging to the next category of qualities. (759). Indeed, he then specifies that only as sensations in our thinking are they individual powers, but in the bodies they are at best "specifically, not individually, single powers; that is, they are only a number of similar motions or figures of the parts of the body" (W III 760).

[xvii] There is some misunderstanding between the interlocutors about the example of the rose, as Clarke thinks that Collins was ascribing to the rose the scent as we experience it. Collins had not done so (W III 770).

[xviii] Clarke sometimes classifies the power of the rose to produce scent in us as a quality of the second, sometimes as a quality of the third kind (W III 797). This is confusing and perhaps inconsistent, but I do not think it affects his argument,

since what matters for Clarke is to rule out that various qualities are really inherent qualities.

[xix] Clarke is quoting here from his own Demonstration of the Being and Attributes of God (DBAG), Prop 8 section z, which can be found in the edition by Ezio Vailati, Cambridge University Press, 1998.

[xx] Clarke explicitly connects the concern about inherence to superaddition, when he writes that superaddition means "that a *Quality* is by the Power of God made so to arise out of Nothing as to be superadded to a *Subject*, and to subsist without inhering in that Subject, to which it is at the same time supposed to belong". (Clarke, W III 760, see also 759) I am separating the inherence and causal constraints sharply here, but perhaps more sharply than Clarke himself did.

One can see the two constraints as connected by the following concern: the quality of the whole must be grounded in the qualities of the parts. The concern with inherence does not arise in the same way for emergentism as it does for superaddition, because emergentism proposes to ground the quality of the whole in the qualities of the parts insofar as they result from them.

[xxi] It is controversial whether Descartes's causal constraints require similarity between cause and effect of merely appropriate levels of reality. For discussion see Janet Broughton "Adequate Causes and Natural Change in Descartes's Philosophy", (Human Nature and Natural Knowledge: Essays Presented to Marjorie Grene on the Occasion of Her Seventy-Fifth Birthday, Alan Donagan, Anthony N. Perovich Jr., and Michael V. Wedin eds., Dordrecht, Reidel, 1986), pp. 107-127. Eileen O'Neill, "Mind-Body Interaction and Metaphysical

Consistency: A Defense of Descartes", (Journal of the History of Philosophy 25, 1987, pp. 227-245); Margaret Wilson, "Descartes on the Origin of Sensation" (Philosophical Topics 19, 1991, pp. 293-323); Tad Schmaltz, "Sensation, Occasionalism, and Descartes' Causal Principles" (Minds, Ideas and Objects: Essays on the Theory of Representation in Modern Philosophy, Philip D. Cummins and Guenther Zoeller, eds., Ridgeview Publishing Company, 1992) pp. 38-55, "Causation and Similarity in Descartes." In New Essays on the Rationalists, Rocco J. Gennaro and Charles Huenemann (eds.), Oxford University Press, 1999.

[xxii] While the application of the causal constraint on causation within a substance is less well know, it also lurks in the background in Locke's argument that God must be an immaterial substance because the cause of thinking beings like us must be itself a thinking being. Locke argues that matter itself cannot produce motion in itself, and similarly

> … Matter, incogitative Matter and Motion, whatever changes it might produce of Figure and Bulk, could never produce Thought: Knowledge will still be as far beyond the Power of Motion and Matter to produce, as Matter is beyond the Power of nothing, or nonentity to produce (Essay, IV.X.10, p. 623)

The idea that inert matter could produce motion in itself, or that matter in motion could produce thought is ruled out because it would be like something coming from nothing, just as is the case for Clarke for material qualities producing consciousness. It is not always clear in this section of the Essay whether Locke is talking about causation within the same subject or in another subject. In fact he seems to move freely between the two.

[xxiii] Disputationes metaphysicae, Georg Olms Verlag, 1998, 2 vols., XII.II.13. And Eustachius of St Paul: the formal definition [*ratio*] of causation "is placed in a real influx of the cause into the effect: so that to cause an effect is nothing other than to really flow into this effect by communicating being to it." (Summa philosophica quadripartita, Paris, Carolus Chastellain, 1609, III 52).

[xxiv] Jonathan Bennett discusses the model as a kind of giving. See his Learning From Six Philosophers, Clarendon Press, 2001 2 vols., vol. 1, pp. 84-86.

[xxv] Clarke's favorite examples of obedience to HP are motion and magnitude, and he offers his most detailed analysis for the case of roundness: the roundness of a body results from the convexity of its parts. This is easily understood as a case of wholes and parts being added up. The examples are instances of traditional mechanistic qualities, motion and magnitude, which are quantifiable and can easily be added up. So for the examples Clarke has in mind, it is easy to understand his tendency to talk about the HP in terms of addition and to present it as a quantitative constraint. And it is fairly easy to see why one would identify the causal and constitutive understandings of emergence. But how about other types of qualities?

Clarke does discuss the application of HP to the mixing of colors: "When the Mixture of Blue and Yellow Powder makes a Green, that Green is still nothing but Blue and Yellow intermixt, as is plainly visible by the Help of Microscopes" (W III 788). But given that he sees a color insofar as it can be attributed to a body as a configuration of mechanistic qualities, this application of HP to color is just an application to mechanistic qualities again. He does not discuss how we should understand sensible qualities insofar as they are

sensations in the mind: does the HP apply to our sensations of color? It makes sense to think that colors can only be mixed with colors to get a new color, as opposed to a sound or flavor. But it is not clear how this would work with sensations, and the quantitative aspect of the HP is hard to apply to sensations. So while the HP is formulated in general terms about any type of quality, it in fact seems more clearly applicable to mechanistic qualities primarily than to other types of qualities.

[xxvi] I do not take Clarke's use of the term "occasion" to mean that he was an occasionalist, he was not. For discussion see Vailati 1997, pp. 58-59. Clarke may have intended to express a kind of model Steven Nadler has labeled "occasional causation". This is a complex causal model where both body and mind play a role. See Nadler's "Occasional Causation", British Journal for the History of Philosophy, 1994, pp. 35-54. I discuss Descartes's use of this kind of causal model for sensation in my "Descartes on Mind-Body Interaction: What's the Problem?", Journal of the History of Philosophy, 1999, pp. 435-467.) My conception of this causal model for Descartes deviates from Nadler's in that I think for Descartes at least (as opposed to perhaps other early moderns) the body does act as a genuine efficient cause on this model in sensation.

[xxvii] I discuss this issue for Descartes in my Descartes's Dualism (Harvard University Press 1998, pp. 135-137; for Locke in "Peach Trees, Gravity and God: Locke on Mechanism", with Gideon Yaffe, British Journal for the History of Philosophy, 2004, pp. 387-412.

[xxviii] For discussion, see Anneliese Maier, "The Theory of the Elements and the Problem of their Participation in Compounds", (in On the Threshold of Exact

Science, Seven Sargent, ed. and transl., University of Pennsylvania Press, 1982, pp. 124-142) pp. 135-139.

[xxix] It may be that this is what Collins had in mind all along, but up to this point the discussion was conducted in terms of emergentism, that is, the view that consciousness is a genuinely novel quality that results from material qualities, rather than a species of material quality that arises from a configuration of material qualities of the same genus.

[xxx] Clarke's optimism is no doubt due in part to the fact that he thinks that Collins chooses to discuss the possibility that thinking is a mode of motion as an example, because motion is the most plausible candidate for identity with consciousness. And so although Collins insists that this is just an example of the sort of thing he has in mind, Clarke thinks it is legitimate to focus on the plausibility of that particular (W III 836)

[xxxi] As Karl Ameriks points out in his discussion of Kant's treatment of the argument. Kant' Theory of Mind, 2nd ed., Oxford University Press, 2000, pp. 58-59.