On the Composstibility of Painting — Suhail Malik

How many worlds are there?

Nigel Cooke's paintings pose this question with an insistence that's hard to ignore. It's certainly not the only question, pleasure, or thought to be had from these paintings but in each piece and across what we have of Cooke's work to date the unity and integrity – the unicity - of the world is again and again put to task. The world we're talking about here is that of the painting, what is happening across the picture plane, and also the world of the viewer, the world as you understand it since encountering these paintings. Already, then, we're speaking about two worlds. But this alteration to the integrity of the world as you thought you knew it is a just a general condition of any encounter that you need to come to understand: you see that there is another world or, at least, a world that isn't yours – yet. Cooke's paintings elaborate and exploit this general condition of strangeness or foreignness with their own singularity and demand for ever greater or lesser scrutiny. It's hard – perhaps deliberately impossible - to assimilate any of Cooke's paintings in one go, with one glance. They require continued looking, at different levels and orders of scale, detail, overallness: a push and pull or zooming in and out of the eyes and of the attention that goes with that, which, even as it focuses on any one painting, is unsettled by the demands of the pictorial organisation. The demand here is for you to move your eyes and their thinking around the picture with only temporary rests on this or that detail, a respite that is already unsettled by knowledge that something else is happening elsewhere in the painting that also, equally, deserves just as much or little attention. The semi-stable yet disintegrating organisation of these paintings - the forcing across what happens at the microscopic limits that Cooke pushes against, pushing your nose against the canvas with it, and the dimension and ambition of the global quasi-integrity of the composition – all of this speaks to a particular set of demands that Cooke's paintings mobilise with relish. We could put it this way: Cooke's paintings unravel the integrity of a world and what is known of it - its coherently hierarchised order – in favour of an uncertainty as to where and how the principle of (in this case, pictorial) organisation is to be located or determined, asking another question: are such principles fully operational in these paintings? Can they be? In any case, if the unicity of the world of the pictorial field is no longer settled – and cannot be settled – in Cooke's paintings, the question comes back again, in a second register: how many worlds are there then?

It doesn't stop there, however. For even as the pictorial-ocular unity of Cooke's paintings disintegrate into an unending labile oscillation, they also effect an integration of sorts. This integration takes place at a different register to that of the paintings' ocular unity in that the multifarious worlds from which the elements that constitute these paintings are extracted and mobilised are composed or composited into as 'scenes' or scapes in fairly traditional and well-recognised ways. The elements of Cooke's paintings that constitute a kind of syntax for an internally consistent code - the dismembered heads, the dissolute graffiti, unimaginable walls and skys, birds, trees, leaves, rocks, the diverse weather conditions, the watery sun, and so on - are each and all collocated into scenes, we could even say pictures, with an internal dynamic and consistency which both relies upon and voids these syntactical elements of their full referential sense. Despite the rigorous consistency of the internal logic and almost

stripped-out narratives of Cooke's paintings, the elements that constitute their syntax retain some of their referential and signifying attachment to the sources outside of the worlds these paintings propose. Some of the decapitated heads, for example, are recognisable as the kind of thing you'll easily find in the ever-proliferating image system of beauty in contemporary fashion, and this source cannot be extirpated from how they operate within these paintings. The depicted scapes rely on just this referential axis, even if only to remark its partial evacuation. Cooke's paintings are thus each an instance of an overawing power that gathers and collates these otherwise distinct elements and the worlds they occupy, signify and operate in together into a consistent pictorial scene - a unicity of sorts. But this collocation of distinct image and referential worlds forces us back to our primary question of how many worlds there are, and forces us into a seeming contradiction with our earlier comments. Because the distinct and usually separated worlds from which Cooke draws his pictorial elements do constitute a more or less integrated, more or less consistent pictorial and even scenic syntax. Cooke's paintings effect a kind of an active indifference to visual source or the received distinction of image worlds. Though this is not in itself an unfamiliar strategy in contemporary painting – painters such as Salle, Rae, Pittman or Polke (insofar as they permit co-categarisation) have made it familiar - Cooke's compositing of pictorial worlds here affirms a scenic integrity, simultaneously proposing the relative incommensurability and integration of worlds without abandoning the protocols of traditional pictorialism.

Cooke has spoken about this dissolution of the significant (which is not to say fully signifying) registers of the syntactical elements of his work in terms of an entropy of visual order, a weakening of difference and available information between the image and meaning worlds deployed to other ends in his work. Extending this notion a bit, Cooke's paintings could be understood as a kind of composited compost – a compos(i)t – that generatively ferments visual registers in reaction to themselves. Here, waste and detritus in the visual field combine as a fecund material-visual base for the production of new pictorial worlds in which the component elements are not annihilated in their initial designated operation and value but fertilise new, other integrated pictorial fields: a referential compos(i)t.. We can then say how many worlds there are along the axis of the referential integrity of Cooke's paintings: one and many, disjunctively together.

The unicity of these paintings is in no case stable: they oscillate between coherent integration and disintegration along each of their ocular, scenic and referential pictorial axes simultaneously. Taking all of these dimensions together, Cooke's paintings respond to the question of how many worlds there are with more than one response – that's why we called them insistent in this regard. It's also explains the rhetorical ploy of posing this question rather than the many other propositions that could be taken up around this work. What needs to be understood here isn't whether these paintings are contradictory or not – they aren't but so what if they were? whose logic do you follow here? – but the complexity of worlds that is somewhat different to the demand of the various complexities any given world throws up. Addressing the latter is the daily work of politics. The complexity we're speaking of here is rather that of a simultaneous unity and multiplicity of worlds that cannot be reduced simply, finally, one way or the other; that cannot be determined definitively as one or many; that refuses any settlement into one world and its subsequent complex organisation (to that extent, these paintings are pre-political and ante-geographical). And insofar as they do not settle between the one and the many, Cooke's paintings instead propose a multi-uni-verse or uni-multi-worlds.

This irreducible indeterminability of (the number of) worlds is what we mean by complexity here. It is amplified by the irreducible equivocation and multiplicity of registers at which the question of the number of worlds can be taken up because of the unicity of the work. Another complexity, then. Complexity upon complexity: the complexity of the depicted and referential multi-universe of these paintings combined with the complexity of their uni-multidimensional pictorial operation.

Though our reckoning with these paintings may reel under the myriad routes opened up by them, the paintings themselves do this work in a powerfully condensed elaboration which itself demands a response that is in some way adequate to it; that is, with a reason sufficient to the unicity of their irreducible complexity. Happily, such a reasoning does not have to be deduced from first principles: equivalent ideas of uni-multiworlds are to be found in both quantum mechanics and rationalist philosophy. It's perhaps important to stress here that these are only equivalent proposals, not analogies or metaphors since we cannot be assured of the transposition of one frame or instance of reference – one world – to another because, precisely, we are now constitutively uncertain whether there is but one world, a unified and fully integrated world, in which the sense or mapping of an analogy or metaphor from one situation to another could be understood to be successful

uni-multi-worlds

The idea of multi-worlds arises in quantum mechanics (QM) at its very foundation. QM claims to describe a physical system by an equation which is not that of particles moving in space, even if that is the system that the physics sets out to address, but rather by an equation that has the form of what in classical physics is a wave. This is already a fundamental displacement of classical physics which makes a clear distinction between the physics of waves and the physics of particles, not least because particles are highly localised and waves are distributed over space. The wavefunction in QM describes the development of the system through space and time in the usual deterministic and reductionist ways of classical physics in that it gives the amplitude of the wave at any point in time and space once the initial conditions have been set. However, such determinism is severely restricted in QM. In a radical break from classical Newtonian physics and even from Einstein's extension of that physics with relativity theory, quantum mechanics proposes that the observation of a physical system interferes with that system and transforms it. In this understanding of QM - known as the Copenhagen Interpretation and accredited primarily to Niels Bohr, one of the QM's founders - the observer is part of the physics. More exactly: the observer makes the physics. This 'production' is not to be understood as an act of interpretation, which is the usual though casual way in which analogies are drawn up between quantum mechanics and other kinds of human understanding. Rather, the observation of a system in fact changes the system in quasi-random and spontaneous ways that cannot be predicted in advance. All 'observation' of physical systems is a bit like sticking your hand intothem and moving the bits around. To see something independently of oneself or anyone else, to know something for what it is, which is the basis of all assumptions of objective knowledge, is then prohibited from the outset by the Copenhagen interpretation of QM. With that the dream of modern Western physics and all the attendant sciences, of being able to describe the future development of a physical system by knowing its initial state and the laws or formulas of its internal operations, a reductionism that is at the heart of all Western physics upto and including Einsteinian relativity (which we can call neo-classical physics), cannot then be

realised.

The Copenhagen Interpretation is a shattering moment in the history of modern Western science because it suggests that physics can predict nothing with certainty, allowing instead only for a range of probabilities of what could be observed over time, and even then only insofar as some of those probabilities will come to be actualised while others won't (it is this probability of actualisation that heads towards 1, towards certainty, as the physical systems observed go from the microscopic scale at which quantised effects are significant to macroscopic scales where they are not). In this interpretation the wavefunction of the QM system is not an equation that determines the operation of the system itself but rather one that speaks to the knowledge of the system. That is, the wavefunction is not an equation of physics, not the equation of a real thing in space-time, but an equation of what can be known about the system by an observer. In the Copenhagen interpretation the wavefunction in QM doesn't say anything about what the system is actually doing but only lets the observer know, through a function of its amplitude, what the probabilities are of a certain state being realised for the observer should a measurement be made. This non-objective knowledge is not a matter of subjective interpretation since the physical interaction by which measurement takes place is primary. To make it a matter of subjective interpretation admits negatively that the physical system develops in an untroubled objectivity and that is exactly what is revoked by the Copenhagen School. More exactly, then, the Copenhagen Interpretation prohibits making any claims to the physical system itself, as such, in its own terms, independently of the observer's status. And this 'solution' can only be repugnant if not untenable to adherents of the traditional claims and requirements of Western science with its attachment to 'objectivity'. Worse yet, since physics cannot then say anything at all about when and how that observation will take place, it can then say nothing predictive about reality or even of small, minor and local physical systems in fact. Physics in its traditional expectations is then invalidated. And this is a real problem because quantum mechanics is the only practically successful formulation of physical systems at molecular to subnuclear scales. It is the continued viability of the objectivity of neoclassical physics that Hugh Everett III, aged 27, sought to restore in his 1957 Princeton University thesis The Theory of the Universal Wavefunction. And it’s in this recuperation of the prerequisite independence from observation of physical systems of neoclassical physics, the recovering of the primary assumption at the heart of Western science, that the necessity and reasoning of many-worlds is to be understood.

What Everett is interested in is restoring the 'reality' of the wavefunction, returning QM to a traditional 'realist' or objective basis and, with that, overcoming the epistemological contention put forward by the Copenhagen school. Objectivity requires exact knowledge and measurement-independence of any physical system. It claims to deal with the reality of the systems it speaks to rather than to intrinsic limitations in knowledge of them, to things themselves rather than their likelihood. Everett's move is therefore straightforward: the wavefunction of the physical system is taken to describe the development of the system in fact, as having an objective correlate, and the observer plays no role in determining the outcomes of measurement. Though this is a direct rebuke of the Copenhagen interpretation of QM it is also a restoration of the status quo ante of the validity of objective physics which does not revoke QM altogether. However, the dilemma that has to be dealt with if the wavefunction is considered only as a mathematical expression of a real, physical object (the particle is a wave rather than just the description of the likelihood of what a system will be

observed to be) is what happens at the point of measurement-observation. We have seen that in the Copenhagen interpretation, the wavefunction gives only the probabilities of a certain measurement being taken at a certain space-time point – there can be more than one outcome of the measurement. Here, once a measurement is taken all other possibilities vanish to nothing; the wavefunction collapses. Everett's realisation of the wave function also admits that there can be more than one outcome of a measurement of a wave function (the maths requires this) – but that because the wavefunction is real all outcomes are realised. That is, even though several values can be obtained upon the observation of the wavefunction, it does not collapse upon observation because it has a reality and objectivity. It is instead the world that divides into the plurality of measurements that the wavefunction allows for. That is, each measurement-observation splits the world because the integrity of the wavefunction is inviolable. In Everett's model, it is not the wavefunction that collapses but the observer who is split into several versions, each of whom observes one of the possible outcomes of the measurement. And this brings us directly back to our initial question: for there are then as many worlds as there are observations of the wavefunction and as there are results that the wavefunction allows for. All possible outcomes of an interaction between systems are realised, but only one in each world. The worlds are generated by the measured outcomes. Any observation or measurement, any interaction of systems, splits the world into all the possible outcomes. From any one measurement, many worlds.

The characterisation of Everett's solution to the quandary of measurement in QM as generating worlds is not Everett's own (who only spoke about the 'relative states' of interacting systems upon measurement of a wavefunction) but Bryce DeWitt's formulation of it a decade or so later, a 'world' being understood, technically, as a complexly connected set of more or less closed subsytems (for example, the subsytem 'observer' and the physical subsystem, whose interaction is called 'measurement'). The key point about this many-worlds – or Everett-DeWitt - interpretation of QM is this: the wavefunction persists upon its observation and that observation splits the world according to what the measured values can be. In this way, every wavefunction – a mathematical description of an object in space-time – 'carries' or includes or is capable of a proliferation of worlds. This is why Everett defines it as a universal wavefunction. It is on the basis of the wavefunction that the probability of the manifestation of a world can be calculated, rather the other way round. Physics precedes observation: observation happens within deterministic physics even if the consequences are the dis-integration of the unity of the world. Each of these worlds exists simultaneously with the others. Every observation-interaction with a system branches the universe, each branch being a world. The measurement recorded in this world is just one particular result-branch-world generated by the observation. The others also exist, each in their own world that exist in parallel. As Everett puts it: 'with each succeeding observation (or interaction), the observer state "branches" into a number of different states. Each branch represents a different outcome of the measurement.... All branches exist simultaneously in the superposition after any given sequence of observations. The "trajectory" of the memory configuration of an observer performing a sequence of measurements is thus not a linear sequence of memory configurations, but a branching tree, with all possible outcomes existing simultaneously' – that is, as the universal wavefunction. The wavefunction is real and so you, the observer, are multiplied into several observers, each with their own lives and worlds determined by the outcome of the measurement (and there also are many worlds in which you the observer do not exist since your not born in them).

This scenario of many-worlds existing simultaneously is a popular one in science fiction and escapist fantasies of all kinds, usually with some redemptive or salvatory narrative involving travel across these many worlds. (The notion of parallel worlds is not to be confused with the parallel dimensions of superstring theory which propose dimensions beyond the three spatial and one time dimension of neoclassical physics. Everett-DeWitt's many-worlds theory stems from the objectivity of the wavefunction and therefore requires all worlds to take place in the same physical space as this world.) However, Everett's theory prohibits movement or communication between the parallel many-worlds generated with each measurement since each world-branch evolves indifferently to the fate of the other branches. Any such information would mean that the branching of the world with the measurement of the wavefunction could be returned to after the fact and a reduction in the number of branches generated by the measurement. That would amount to a re-ordering of the system and a reversibility of time, which violates the second law of thermodynamics for which entropy – the disorder and dedifferentiation of a system - only increases with time. The non-communicability between branches of the universal wavefunction worlds also explains why each world seems to be the 'only' real outcome of the measurement-observation. There can be only a theoretical knowledge of the other worlds with their different outcomes but no actual information about – or from – them. How many worlds are there? The multiple of the number of observations or measurements – more generally, interactions - that have taken place between subsystems and the number of possible outcomes of those interactions. And this can only increase with time.

The conceptualisation of many-worlds in Everett-DeWitt's theory seems to provide a reasoning adequate to the complexity of worlds occasioned by Cooke's paintings. An equivalence can be made between the proliferation of worlds of Cooke's paintings and the splitting of worlds at the point of observation or production in QM, the latter being translated as Cooke's interaction with, or 'measurement'-sampling of, the visual world in its heterogeneous multiplicity. Furthermore, insofar as Cooke's compos(i)tings combine diverse 'branches' of the image world into a more integrated unity of scenic painting, a genre historically prior to the proliferation of image worlds that these paintings source, in the terms of many-worlds theory Cooke's paintings in some ways go 'upstream' in the branching multiplication of visual worlds, suggesting a painterly equivalent of something closer to the universal wavefunction that we could call a (more) universal painting-function. That is, Cooke's compo(i)ting propose a universal painting-function of the history of painting and of visual multiplicity more generally. The paintings would then be not so much scenarios of some other place or world, however purely imagined or referential their sources are, as the access in painting to a response adequate to the question of how many visual worlds there can be, able as they are to encapsulate in principle and in painterly fact all these worlds in their scenic unicity just as the universal wavefunction encapsulates all worlds in one theoretical condensation.

But the equivalence between Everett's universal wave-function and Cooke's universal painting-function holds only within certain limits whose consequences are more striking yet. Three limits can be noted:

1. The unicity of Everett's universal wavefunction is that of its objective reality such that it is the observer and her or his world that is branched at each measurement. With Cooke's paintings, however, the observer-viewer maintains some kind of integrated totality because the number of visual worlds contained therein

(determined along their referential axis, for example) are compos(i)ted into a scenographic unicity. Cooke's universal painting-function supports the integrating power of the observer, be it Cooke or you, rather than their dis-integration into diverse observables as in Everett-DeWitt's theory.

2. The universal wavefunction is posited in order to maintain the reality of physics rather than turn it into a vexed epistemological problem. It re-commits physics to its objectivity. There is however no need to maintain any such commitment in painting, even if it could even be conceived at all for this practice (distinct in this regard to lens-based picturing). In contrast to the restoration of objective nature as the root of what physics deals with – and the universal wavefunction is another way of speaking about pure nature at the origin -, whatever claim Cooke's paintings can make to the notion of a universal painting-function is predicated entirely on the arbitrary artificiality of their referential compos(i)ting. The universal painting function is in this double sense synthetic.
3. If Cooke's compos(i)ting is a kind of universal painting-function then it is because their synthetic compos(i)ting push us upstream of the splitting of diverse, perhaps otherwise incommensurable and non-communicating, visual worlds. And they do so in terms a scenographic pictorial unicity that is just one of those worlds (to that extent, it would be inappropriate to think of the elements in Cooke's paintings as elements merely situated a background scape: if it needs to be spelt out, the scape or scene Cooke paints is but one of those elements, the synthetic – that is, counternatural - operation of which is emphasised by their depicted enormity or depth). But even as they are approximations to the universal painting-function these synthetic synopses of the multiplicity of the visual universe are themselves also worlds, additions to the multiplicity of the visual universe. Cooke's paintings thus move not only move 'upstream' of that branching but also simultaneously 'downstream' of it in that they have their own distinct idiom, generate more pictorial worlds. In terms of Everett-DeWItt's theory this double move can only be understood as a contradiction generated by taking the equivalence between it and Cooke's paintings too far. As a contradiction it draws attention to the misfortune of the analogy though this can readily be corrected by some modification of the logic of the argument. But the telling limitation against making a direct equivalence between the many-worlds theory in QM and Cooke's paintings is that the historical, worldly manifestation of an increasing universality of many-worlds is strictly prohibited in Everett-DeWitt's theory. The universal wave-function can only ever branch and split into worlds with each interaction/observation, its universality being only a theoretical proposition without actuality. Cooke's paintings actualise an ever greater universality of visual and pictorial multiplicity, making manifest a universal painting-function by the historical compos(i)ting of their referential synthesis. As such, there is no equivalent to the universal painting-function of Cooke's work in Everett-DeWitt's many-worlds theory. The logic of the unicity many-worlds stemming from the naturalisation and objectivisation of the wavefunction in QM is inadequate to the unicity of many-worlds proposed by Cooke's work.

monado-pictorial production

If Cooke's paintings cannot be adequately addressed on the basis of even an analogy to the theory of many-worlds generated by a naturalisation of quantum mechanics, drawing up the equivalence nonetheless led us to the notion of a universal painting-function. To elaborate this idea further an account of multiplicity and universality is needed that extends beyond Everett's requirement of a historical

primacy of universality and permits instead a production of universality with time and in actuality. Such a reasoning is available: it is formulated at the turn of the seventeenth-eighteenth century in the cosmo-theological theory of the German philosopher and man of letters Gottfried Willhelm Leibniz. Despite the great ostensible difference in the history of ideas between Leibniz's rational theology and Everett's solution to the crisis QM presents to the objective-naturalist basis of physics, both elaborate in their own way a notion of world as a residue of many possibilities that have been realised in a particular configuration as this world while also accepting the existence in principle of other configurations, other possible worlds. The difference between them is in how the many possible worlds occur simultaneously. We have seen Everett's solution to this: all possible worlds are equally real but are incommensurable to one other. For Leibniz, as we will see, only God can comprehend all the many possible worlds simultaneously (Monadology [hereafter M] §§40-41) but not all worlds are real. Only this world is. Two questions then arise: first - what kind of existence in God do the many other worlds have? Second - why this world?

The many-worlds theory of QM cannot answer the question of why this world other than by following the branches back to the points at which they split; it speaks only of this world as a 'preferred basis' for a particular observation. However, as Leibniz realises, such a tracking back is only a theoretical solution that is in fact impossible to obtain. Leibniz's terminology for this reasoning backwards to a cause 'upstream' of the branching and splitting off of realised possibilities is that of a sufficient reasoning for truths of existence or 'contingent truths'. Unlike mathematical facts or truths, which can be analysed and proved in a finite (though sometimes large) number of steps, historical truths require an infinite analysis as to their efficient and material causes: 'the resolution into particular reasons could proceed into unlimited detail because of the immense variety of things in nature and because of the division of bodies to infinity' (M §36). Not only that: because what happens historically is contingently the case – it could have happened or it could not have happened – the reasons for it, the determination of its basis, could go on endlessly. Getting to the bottom of things never ends – unless, in the Abrahamic traditions, you get to Adam's sin, or, in the constructions of modern science, you get to the origin of the universe (what Everett calls the universal wavefunction). But even with Adam's sin you have to take into account the apple, the snake, Eve, her temptation, Adam's loneliness, the warmth of the sun on the day, and on and on. Moreover, since any truth of fact is contingent, there is no necessity to it and its opposite or contradiction is also possible (Adam could not have sinned, Leibniz could not have written, Everett could have affirmed the Copenhagen interpretation, etc.). The apparent arbitrariness of why things went this way and not that, why this possibility was realised and not that, means that every possibility and outcome would have to be taken into account in reckoning how things came to be what they are, whether those possibilities were in fact realised or not. The analysis of contingent truths to the ultimate reason is, as Leibniz puts it, 'outside the sequence or series of this multiplicity of contingencies, however infinite it may be'. As finite creatures we can never get to truths of existence because their analysis is infinite not just in the steps of analysis it would require but in the range of possibilities at any one step. Only 'a being that has the reason of its existence in itself' can find and give the reason for contingent truths (M §45) since for such a being the infinite chain of possibilities and actual causes would be intrinsic to it and would have its truth, its infinite truth, in itself. Leibniz's name for this being is God. It is not that finite beings cannot presume to God; rather, only, that finite beings are bound to the apparent contingency of their existences and God is not. Truths of existence are for us ultimately

contingent, apparently arbitrary. For Leibniz God contains – is the name for - all possible realities, whether they are realised or not. In an important definition, Leibniz posits that perfection is 'the magnitude of positive reality considered as such, setting aside limits or bounds in the things which have it'. That is, perfection is determined by how much reality anything is capable of or limited to, and since God has no limits God's 'perfection is absolutely infinite' (M §§40-41). All imperfections arise from finite beings in that they are not all of the possible realities that can be actualised, which totality God alone is. The imperfections of the world, of any world, arise only because it is a world and not all possible worlds. This imperfection of the world and all that is in it – the bedrock of Christainity – is for Leibniz not a moral point in the first instance but a logical one.

Why this world rather than any other? Why these accumulated contingencies rather than others? Because, Leibniz can now answer, the more perfect a world is, the more likely it is to exist: any possible world has 'the right to claim existence in proportion to the perfection it contains' (M §54). This world exists rather than any other because, in Leibniz's terms, it is the best possible world. The moral comprehension of this argument lends itself directly to the cruel satire to which Voltaire subjects the notion of the best possible world in Candide. But mocking this argument on the basis of the minor and major cruelties of this world is itself a stupidity. The best of all possible worlds does not mean for Leibniz a world without barbarity, cruelty or malice (Voltaire's included). That it is the most perfect world only means that this world is the one in which most possibilities are actualised. That is, in more contemporary terms, the world most likely to exist is the world of greatest possibility. We could say: the most probable world. Put the other way: there is nothing that special or unlikely about this world; it's just that other worlds that have less possibilities in them are less likely to exist. In some ways, it's a matter of definition: the greatest possibility means the most probable to exist. If this is for us now self-evident, it is perhaps harder for Leibniz to phrase as such because he is amongst those inventing the language of statistics and probabilities in the first instance.

This is where we can return more directly to Cooke's paintings and the question they open up of the number of worlds there can be. For what, after all, is the most possible world? The world with most possibilities, Leibniz would say. How could such a thing be determined? Leibniz understands the challenge here and introduces the term compossibility to speak for it. Compossibility is the contiguity or compositing of possibilities together, that the realisation of one possibility is linked to another possibility; for example, Leibniz writing is compossible with Adam's sin. So, though other worlds are logically possible they are not compossible with the total accretion of possibilities as they have been realised in this world, as this world in fact. This world is what it is because of the compossibility of what has happened, the aggregated and integrated totality of possibilities already and to be realised (your children and their children and so on will be born or not because you were born because your mother was born because... etc.; Everett's rebuke of the Copenhagen Interpretation is compossible with Leibniz's philosophy is compossible with Adam's sin, etc.). All that takes place in this world is intrinsically compossible; and this world is incompossible with any other. This world would not be this world if other possibilities had been realised. A similarity with Everett-DeWitt's theory here is confirmed in Leibniz's proposal that there are other worlds which are also compossible within themselves but do not interact with this one - the world in which Leibniz wrote is not compossible with the world in which he did not, or the one in which Everett supported the Copenhagen interpretation. Though that

could have happened it is a contradiction in fact or, in Leibniz's terms, incompossible. However, the similarity is broken in that while Everett-DeWitt's theory is, precisely, a many-worlds theory such that all possible worlds are realised in universal fact though they are mutually incompossible for any one world, for Leibniz only one world is realised – this one. Though all worlds are compossible for God alone (for the universal wave function in the Everett-DeWitt theory), all other worlds do not come into existence, are not in fact. Furthermore, and here Leibniz's argument allows us to think past the limitations of the many-worlds theory, the world most likely to exist is the one with the most extensive compossibility, the world in which the greatest number of possibilities are linked to one another – because this adds to the total possibility of that world. Example: if Adam had not sinned and was not kicked out of Eden with Eve there would be no history of the world and the number of compossible actualities would be less than they in fact are. The probability of coming to existence of a series of compossibilities is not a result of their factoring upon one another – as it is in the branching of the universal wave function in the many-worlds theory - but only a matter of their addition to one another (fractions multiplied head towards 0 and impossibility; added they head towards 1, which is to say certainty). How many worlds are there? Leibniz tells us: many possible worlds, one actual world – the world with the greatest compossibility.

Here, we suggest, is a notion adequate to the proliferation of complexities proposed by Cooke's paintings in their scenic unicity. We have pursued these various notions of uni-multi-worlds in striving to establish a reasoning adequate to the unicity of Cooke's compos(i)ting of heterogeneous elements, and it is in what Leibniz famously calls a monad that a sufficiently succinct formulation for a unicity that testifies to the compossibility of the world, that contains the compossibility of the world in itself, is to be found. Monads are a direct consequence-condensation of the theory of compossibility. Since all realised actualities are compossible in any world, all that is in this world speaks to its co-existence or connection to all else in this world, historically and at any given instant. More than that, each actuality testifies to the compossibility of the world as a whole. Every individual thing expresses the totality and interconnectedness of the world: the 'interconnection or accommodation of all created things to each other, and each to all the others, brings it about that each simple substance has relations that express all the others, and consequently, that each simple substance is a perpetual, living mirror of the universe' (M §56). These 'simple substances' are monads. Each is in itself a 'mirror' or, we might now say, a network node, of the interconnectedness of the universe, of compossibility. The key point here is that monads are to be understood as intrinsically relationful, these relations being its compossible connections, its continuity with the world and all that is in it.

The monad means that compossibility precedes identity, complexity and interconnection precede simplicity and integrity. And perfection precedes imperfection. While it's clear that the term monad name could be applied to Cooke's paintings just so, the term is for Leibniz a general designation and conceptualisation of what we now call individuality, any differentiated moment, and so speaks little to the specificity of Cooke's paintings. But insofar as these compos(i)tings constitute something like a more universal painting-function, that greater universality can now be understood as the increased compossibility of visual worlds or visual possibilities. (We can add, incidentally, that the theory of increasing compossibility also enables us to understand the problem of measurement and probability in QM in terms irreducible to either Everett-DeWitt's objective realism or the epistemological model of the Copenhagen

school. On this basis, measurement in QM is instead the generation of additional compossibilities, the probabilities associated with the wavefunction in QM being statistical determinations of the coming into existence – the fabrication - of a particular configuration of compossibles.) As we know, the compos(i)ting of heterogeneous elements in the visual world is in Cooke's paintings an accretion of visual possibilities in an integrated scenic picture. This compos(i)ting of compossibilities – Cooke's composstibility or compositibility - increases the compossibility of the world. Though any production whatever does this since it is a further realised possibility in the world, the compos(i)ting of otherwise incompossible contingencies is the explicit operation of Cooke's paintings in direct reference to the history of (in principle, all) visual possibilities. What we have previously called the more universal painting-function of Cooke's work can then be understood as the addition of further compossibilities in an integrated unicity, that is: the production of new pictorial monads. In Leibniz's terms such an increase in compossibilities, Cooke's synthetic composstibility, can be understood only as the generation of more perfect worlds. And since this extension of compossibilities is not only enacted by Cooke's paintings but is also thematised in them, Cooke painting (in the active, verbal sense of the term) can then be said to effect a world of greater perfection refracted through the monad that each painting is.

We can then propose an answer to our initial question that is, at last, adequate to what to Cooke's paintings propose, whose demand required this necessarily complex elaboration to an answer that however makes little sense unless understood with regard to a production of pictorial monads. How many worlds are there? Without utopian, moral or other judgement, Cooke's compos(i)ts tell us: a more expansive pictorial monadism; that is, a more perfect world.

Sources

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