

Free Will and Determinism: Resolving the Tension

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Abstract

Progress may be made in resolving the tension between free will and determinism by analysis of the necessary conditions of freedom. It is of the essence that these conditions include causal and deterministic regularities. Furthermore, the human expression of free will is informed by understanding some of those regularities, and increments in that understanding have served to enhance freedom. When the possible character of a deterministic system based on physical theory is considered, it is judged that, far from implying the elimination of human freedom, such a theory might simply set parameters for it; indeed knowledge of that system could again prove to be in some respects liberating. On the other hand, it is of the essence that the overarching biological framework is not a deterministic system and it foregrounds the behavioural flexibility of humans in being able to choose within a range of options and react to chance occurrences. Furthermore, an issue for determinism flows from the way in which randomness (e.g. using a true random number generator) and chance events could and do enter human life. Once the implications of that issue are fully understood, other elements fit comfortably together in our understanding of freely undertaken action: the contribution of reasons and causes; the fact that reasons are never sufficient to account for outcomes; the rationale for the attribution of praise and blame.

Keywords

Free Will, Determinism, Randomness, Reasons and Causes, Praise and Blame

1. Introduction

There are widely recognised problems focused on the idea of free will. People generally understand themselves to be making choices and exercising responsibility. This perspective may then be confronted with the notion that the universe is a deterministic system, which is taken to mean that its condition at any time is

controlled by its condition at an earlier time, and so on backwards in an indefinitely extended way (Hoefler, 2016). The notion of “control” within a deterministic system is taken to mean that, given the laws of nature, later states necessarily follow from earlier states (Blackburn, 2009).

It is easily felt that the two ideas of freedom and a deterministic system are in tension, even to the point of incompatibility (Britannica, 2021). The notion of freedom implies we are taking decisions and choosing between alternatives; it is of the essence that we could act in ways different from how we do in fact act. Against this, the deterministic system model has us necessarily controlled by earlier events which could stretch back even before we were born. Are we free if our choices and actions are in principle determinable in advance?

In the attempt to make progress in overcoming the problem, it is not infrequently asserted that there are elements of randomness in the system; at least in some respects, it may be claimed that what happens involves indeterminacy. To sharpen the point recourse is most often had to quantum theory. Within that body of ideas, random events are posited at a subatomic level, although it is unclear whether this gives rise to randomness at the aggregate level of macro-events and objects. Nevertheless, quantum theory is now believed to be involved in the understanding of life processes such as metamorphosis in the butterfly and the behaviour of the robin (Al-Khalili & McFadden, 2015). It seems possible that it may also be needed to understand processes internal to the human brain. So the notion that the character of quantum theory (within which probability is an essential element) has implications for human thought and action cannot remotely be ruled out. However, the positing of pure indeterminacy may in itself be no more helpful to the idea of free will than is determinacy. This is because nothing can determine the outcome of a system governed by pure indeterminacy; therefore that outcome cannot be said to be the responsibility of a human agent exercising free will.

At this point in discussion, another suggestion which sometimes arises is that the human agent makes decisions and choices while being independent of physical nature: from that vantage point, he or she can somehow intervene and make things happen. However, this is not a defensible position. In respect of physical nature, forces and events arise from earlier forces and events. One only has to reflect on the fact that chemical and electrical changes in the brain underlie thought, speech and action; they are necessary conditions for those events. Humans have arisen within physical nature and in their actions, they cannot transcend physical laws, as illustrated by our bodies and motion being subject to the law of gravitation.

Hence there is a marked tendency for this relatively familiar line of thought to reach an impasse. To orient further, it is worth noting that the idea of acting freely or acting on the basis of free will is to be understood as primarily lay terminology; it is not a specialist philosophical idea nor a term of art, though, of course, philosophers and others contribute to the understanding of it. On the other hand, determinism and the idea of a deterministic system is decidedly spe-

cialist and esoteric and has few links to the average life. Some difficulties in bringing these two ideas together in philosophical discussion flow from differences in their origins and contexts. Nevertheless, the intention of this article is to make progress from the impasse by placing each concept in context and teasing out the nexus between them. An initial purpose is to survey the context of the use of the idea of freedom in life and to proceed to argue that causality and determinism figure as conditions for human freedom rather than simply being constraints upon it. There follows an examination of how randomness and chance events may enter human life. Various considerations imply that the exercise of human freedom is such that the idea of the universe as a deterministic system incorporating human action is a mistaken one.

2. The Meaning of Freedom

A primary meaning of freedom concerns (decisive or overwhelming) physical constraint: in a locked cell a prisoner is not free to leave, while he or she is free to leave a cell when the door is open. We also judge that an individual is not free when their behaviour is a response to post-hypnotic suggestion; in this case, they are judged not to be the source (or, in a sense, author) of their own behaviour. In these types of cases, an individual is judged free to do something or to refrain from doing something only when they are able to do so; the latter condition may be unstated but, if so, it is implied. It may, for instance, be judged that a drug addict cannot straightforwardly stop taking a drug, or that an extreme agoraphobic cannot bring themselves to enter an open space. These latter are cases where there is no external physical constraint but there is understood to be a decisive internal one.

It is worth pointing up that in these straightforward cases the determination of human behaviour is only in a specified “broad brush” sense. Thus when we say the prisoner is not free to leave the cell, this says nothing about their behaviour within the cell: he or she might take a seat or, alternatively, pace up and down. Again, the agoraphobic would have a wide range of behavioural options not involving entering a particular open space. It is indeed very difficult, probably impossible even as a thought experiment to construct a scenario where the determination of behaviour is as exact and minute as that implied by the notion of a deterministic system.

In the interests of completeness, one must note a further, perhaps secondary use of freedom which arises in cases where behaviour is subject to regulation but is not understood to be determined, even in a partial sense, by external or internal constraint. These are cases where behaviour is understood to be regulated because it falls within the scope of rules or the authority of another; for instance, school rules dictate that we are not free to walk on the grass or behaviour is subject to “doctor’s orders”. In these cases the constraint is real but its impact is mediated through the intentionality of those subject to it; they are fully recognised to be able to break the rule or ignore authority. These may be situations

where sanctions may be brought to bear, but the constrained individual is still understood to retain freedom of action, although in practice is less likely to act in a specified way.

In ordinary, everyday situations how are judgements as to freedom made? They are generally made taking account of the types of factors already indicated. Hence, when it is inquired whether someone is free, it might be asked whether he or she is able to do something and whether they are subject to external or internal constraint; also whether rules might be broken or it would involve defying authority. We fully understand there are situations where someone could do something but it would be hard for them to do so. Arising out of these considerations, it seems that freedom may be approached as a kind of residual, meaning that the freedom to do something is what an individual has in the absence of the above types of constraints and limitations. In particular, many writers concur with Hobbes in understanding liberty as the absence of impediments “not contained in the nature and intrinsic quality of the agent” (Hobbes, 1999; Ayer, 1954). As indicated earlier, a basic related idea is that, in the given context, the individual has alternative ways of acting. In being free to do something one is also free not to do it or free to do something else: it is basic that one could behave otherwise (O’Connor & Franklin, 2021).

Further to Hobbes’s reference to “the nature of the agent”, a further point may be made by way of clarification. It applies when an assertion is made of the kind that an individual is “law-abiding”, or “has democratic values” or “appreciates art”, *i.e.* when attention is being directed at someone’s values. The mistaken claim is then sometimes made that this person’s freedom or exercise of free will is somehow constrained or compromised by their needing to conform to their own values. On the contrary, however, the essence of free will lies in one’s actions expressing one’s values and preferences, and not in contravening them. A law-abiding person will intend to fill in his or her income tax return truthfully; someone with democratic values will choose to vote in an election; someone who appreciates art will occasionally visit the National Gallery. Indeed, unless you exhibit these types of behaviour patterns you cannot be said to hold the corresponding values. The restrictions of freedom would be real were the individual prevented from acting in these kinds of ways. In sum, acting on the basis of free will involves expressing one’s values and preferences; the latter cannot properly be said to compromise or subtract from that freedom.

3. Conditions of Freedom

To make progress on the central issue it is worth dwelling on a suggestive insight of Hume. He went so far as to argue that determinism is a *necessary condition* for freedom—or at least, he argued that some causality principle along the lines of “same cause, same effect” is required (Hoefler, 2016). Hume’s pertinent contribution can help us to take a new direction in our deliberations on free will and determinism. What he is suggesting is that the exercise of free will is essentially

dependent upon the operation of causality and deterministic phenomena. For instance, for it to be said that you are free to lift an apple to your mouth, it must be the case that apples remain of roughly the same weight and do not suddenly become a thousand times heavier; similarly, your arm will not suddenly detach at the elbow. Again, communication between people is conditional upon sound (air pressure) waves or electromagnetic waves continuing to exhibit law-governed regularities. Importantly, this does not amount to saying that free will depends upon the operation of a fully deterministic system; nevertheless, in the absence of the types of conditions indicated by Hume, freely undertaken human action would become impossible because of a lack of predictability in the relation between intention and outcome.

One can usefully add to that, however, by saying that the human exercise of free will is itself informed by an understanding of causality and deterministic phenomena. Let's note some pertinent examples: 1) We draw back from the top of a cliff face because we fear falling over it (under gravity) and being killed; 2) We pull up at a pedestrian crossing conscious that the momentum of a car could easily kill or injure a pedestrian; 3) We replace a failed light bulb with another of the same type in the expectation that a lamp will then work. In each case the expectation we have is well-founded but the key point is that our exercise of free will is informed by that expectation. This line of thought does indeed represent a considerable change of direction in treating the main topic for this reason: initially, the idea of a deterministic system was being used to suggest that our actions were on (albeit complicated) tramlines meaning that apparent options were in reality unavailable. Now the entirely different vista opens up that the exercise of free will essentially involves a choice between options which is informed by an understanding of causal and some deterministic phenomena.

Whether gravity is a deterministic phenomenon is still a subject for debate (Hoefer, 2016; Earman, 1986); at the risk of oversimplifying, the argument here travels with the view that it is. A consideration of that phenomenon can illustrate not simply that human action is subject to a deterministic system, but the understanding of the operation of that system can add dimensions to human freedom: can indeed be liberating. The first thing to say is that a human being is indeed governed by gravity all the time; for instance every step one takes is governed by the need to preserve balance; when eating and drinking one ensures the food and drink do not fall to the floor as opposed to reaching the mouth. Gravity is indeed constraining: most obviously, we cannot fly by waving our arms. The various behavioural options open to us must be ones where there is conformity to the law of gravity; freedom is subject to gravity. But here is the clever bit: the development of human civilization has been marked by an increase in the range of options associated with advances in the understanding of mechanical processes constrained by gravity, such as in the use of the inclined plane, the lever and the pulley; also the ability to transport heavy craft and freight over water and (more recently) by the storage of gravitational potential

energy within a hydro-electric facility. Most spectacularly humans have mastered heavier-than-air flight. This last is spectacular precisely because the way in which the pull of gravity on the airplane is balanced by an air-pressure uplift is so subtle. (Heavier than air flight was judged to be impossible by some scientists even in the nineteenth century.) These are collective achievements which liberate us as individuals. The picture is now of a deterministic system which contributes to our liberation; we are not simply constrained by gravity but we make use of it. For these purposes, the hallmark of a deterministic system is that you can rely on it both from moment to moment and long-term.

4. The Nature of Overarching Scientific Theory

It is worth stepping back at this point and inquiring what a deterministic system of the type initially indicated above could possibly look like. Referring to physical science there are understood to be four basic forces, gravity, the electromagnetic force, the nuclear strong force and the nuclear weak force; there is also a standard model of particle physics. There is talk of “a theory of everything” but that would involve the integration of theory, e.g. the theory of gravity together with theory concerning the other forces; it would not involve jettisoning the understanding provided by each element. In addition, physical theory interprets phenomena within the context of quantum theory and general relativity. It is hard to envisage any overarching deterministic system which does not have these sorts of constituent elements (although the incorporation of quantum theory would make probability an essential ingredient) (Eagle, 2021). Why then could not the relation of that integrated deterministic theory with human freedom be the same as that exhibited by gravity alone? In other words, why could not human activity be governed by that system all the time but in a way which merely defines parameters of human freedom, and what is more, could not knowledge of the operation of that system be liberating in the way which applies to gravity alone?

Additional illustration of the point can indeed be provided by consideration of the electromagnetic force. Everything in our environment and in our bodies conforms to the laws of electrical attraction and repulsion. Nevertheless, that merely defines parameters of human freedom. The ubiquity and importance of electricity in the universe are substantially concealed from us because most but not all of our natural everyday environment is in fact electrically neutral. Where, however, we are aware of the phenomenon, then we may make use of it. Thus, we can be killed by lightning strike but through our understanding of electricity, we can design a lightning conductor or an electrically powered air-conditioning system, both of which are life enhancing, the first through diminishing injury and death, the second through enlarging our range of options.

So far in considering the possible character of a deterministic system attention has been directed at basic physical science which is often what people have in mind. Of course, in actuality, we also understand human life to be governed by

special sciences such as chemistry and biology. In order to clarify issues of determinism and the parameters of human freedom, these special sciences also warrant careful scrutiny. In one respect, the position as regards chemistry seems similar to that of physics in that plainly the whole of the human body and its environment is governed by chemistry, and thus that discipline defines parameters of human freedom, but it is again the case that our collective knowledge of chemistry is liberating, as is illustrated by its place within the chemical industries. However, there is the complexity that chemistry and biology come together in biochemistry.

When it comes to biology and biochemistry there is a crucial distinction to be made between the understanding of (a) the anatomy and physiology of the human body (*i.e.* the internal working of the human organism so that life may be maintained) and (b) the development of the human being as an organism and its life process within its environment. Under (a) a key point is that a whole number of conditions need to be met for the human organism to remain alive and to be able to exercise freedom. e.g., there is a need for the blood to circulate, for haemoglobin to bind oxygen and transport it to cells; also, for there to be internal temperature control. Indeed, there are many systems in operation internal to the body which depend upon causal including deterministic processes; particularly important are all the various processes constituting cell biology. Crucially, in this connection, the operation of a combination of deterministic chemical and electrical processes within the human body is the basis for human movement (involving the molecules glucose and ATP) and communication internal to the body (involving chemical changes within the cell and changes of electrical potential difference between cells); therefore freely undertaken human action only has reality given the operation of those processes. What is also apparent is that the human understanding of these biological processes enlarges the scope of human freedom; most importantly, there is the understanding of the causes of morbidity and mortality, which is put to good use in medicine and surgery.

It is highly significant, however, that when it comes to (b) the biological understanding of the development of the human being as an organism and its life process, the overarching framework of biology provided by the synthesis of the theory of evolution by natural selection and genetics does not amount to a deterministic system (Brandon & Carson, 1996), nor is there anything in that set of ideas which implies minute determination of human action from moment to moment. In fact, the position is entirely the opposite, for the picture which emerges is of humans who are provided with large brains so as to be able to adjust behaviour strategically and tactically in response to local circumstances; they make complex decisions on a moment-by-moment basis (Startup, 2021). The complexity of the situations partly arises from the non-human environment but also from anticipated and unanticipated interventions of other human agents. That picture is altogether compatible with free will, but it does not fit with the idea of human behaviour or its context being determined in advance. It is worth remarking that one of the most extravagant claims that could be made of an

overall deterministic system is that it could fully accommodate the interactions of human beings themselves.

5. Some Issues Regarding Determinism

Arising out of this discussion of the scope of the sciences, there are further considerations which lead one to doubt the possibility of a comprehensive deterministic account of human behaviour. One has to do with the fact that while there are physical laws or theories which are arguably deterministic in character, these apply to aspects of reality rather than to its comprehensive nature. The theory of gravitation with its inverse square law is a case in point. That theory concerns such aspects (variables) as force, mass, length and time. (The familiar classical form of that theory is subject to reformulation within the general theory of relativity but that does not essentially change the point being made here.) Gravitational theory enables one to determine the position and velocity of the planet Earth at some future time given knowledge of its position and velocity at an earlier time (i.e. assuming the solar system remains an isolable system); it also helps to explain why humans cannot fly like birds. Crucially, however, this is only a determination in relation to the variables in the theory; it goes no wider than that. For instance, the theory enables one to determine the position of the planet or of a falling human being but it does not bear in the same way on the life process itself—for the simple reason that the parameters of life go beyond force, mass, length and time. There is every reason to doubt that any assemblage or integration of physical theories could provide a deterministic account of human behaviour including decision making; for one thing, the categories of physical theory have no bearing on those involved in human decision-making nor for that matter on rule-following behaviour which is central to human social life. Of course, as noted above, theories from the special science of biology, as opposed to physical theories, do bear directly on life processes but not in such a way as to offer a deterministic account of individual human behaviour.

Further consideration also points against the adequacy of a longer-term deterministic account. In the search for such an account, attention is often drawn to processes internal to the body and particularly within the brain. The view is often advanced that neuronal activity is interdependent with, or accounts for, human thought and behaviour and it is indeed the case that the two relate intimately. This important consideration, however, does not provide the basis for a deterministic account. In particular, it does not take sufficient account of the fact that humans are continually interacting with the environment and especially with other people. Where a conversation is underway the behaviour of any one party derives to a critical extent from the contribution of the other person *i.e.* it goes above and beyond the initial state or process of their own brain. Where a question is asked of another person and a response provided, there is a range of options in respect of the replies and then a range of options in terms of how the first speaker carries the exchange forward or chooses not to. People do not typi-

cally ask questions where the response is already known; nor can they be sure of their own reaction in advance. It is implausible that an adequate deterministic account of human behaviour based on neuronal activity could even in principle be provided given this feature of virtually continuous interaction with an environment, within which other people form the most fundamentally important part. Furthermore what is referred to as culture is a complex resultant of these kinds of interactions. The notion that culture and cultural change could be accommodated within a proposed deterministic account is particularly far-fetched. Occasionally in this connection, the notion that there could be theoretical reductionism is postulated. (An example of reductionism within the sciences concerns interpreting the phenomenon of temperature by reference to the kinetic theory of gases.) In this instance, however, the gulf between the concepts employed in respect of the two spheres appears to be altogether too great.

6. Randomness and Chance Interventions in Human Life

As already pointed out, the valuable behavioural flexibility that humans exhibit is partly concerned with addressing unexpected developments in the human and non-human environment. In this section, the intention is to argue that the idea of a deterministic system may be seen to break down at precisely that point i.e. when one directs sustained attention to the notion of truly random or chance elements entering into or impinging upon the course of human life.

Within the context of philosophical discussion of free will and determinism, the suggestion may arise that the appearance of alternatives in human life is deceptive, that actual behaviour at a point in time is determined from its antecedents. Against this, a common way for a proponent of free will to seek to demonstrate the real existence of alternatives is to exhibit them successively. Thus the assertion may be made that one could choose to sit in any one of a row of seats and the demonstration consists of sitting in each one successively and moving between them. It is significant that that demonstration would normally be taken as decisive and definitive in showing that one could occupy any seat and the seats in any order. Nevertheless, the determinist may still seek to counter with the suggestion that the order in which the seats are occupied is determined or predetermined. That response is felt to be implausible but it seems to call for greater attention to the phenomenon of the exercise of choice between alternatives presented at the same time.

In that connection an interesting and challenging case may be constructed: this is where an individual is presented with alternatives but decides to act on that which is chosen at random. One could enter a room where there are six empty seats but decide which one to occupy at random; again, one could decide which of six possible holidays to take at random and then precede to embark on the holiday selected. For this purpose use would be made of a true random number generator (TRNG) based on random physical sources; the phenomenon of true randomness belonging to quantum physics.

Making choices in this way is perfectly compatible with the idea of free will—the agent can patently adopt this strategy, but is it compatible with a deterministic account directed at human behaviour? It would be possible for a persistent determinist to claim that the decision to choose a random strategy was determined or predetermined, but this will not do in relation to the outcome and consequences of the choice. It may also be asserted that once the alternative has been selected randomly, that determines the subsequent course of action (assuming there is no change of mind). However, it does not seem that there could be precise determination of human behaviour across the specific time when the random selection is made *i.e.* there can be no exact determination of behaviour linking the position a short or longer interval of time before the selection is made to the position afterwards. Patently too the specific choice made could have substantial long-term consequences as when new friends are made on a holiday. One may be selecting from divergent life courses.

So far the case has been considered where an individual makes choices for himself or herself using TRNG. However, it is also highly significant that that type of randomness may be introduced into the lives of an indefinitely large number of other people. This is because, given that we are continually interacting with others, one could choose to allow the timing or content of those interactions to be governed to varying degrees by TRNG. Thus, one could offer to buy one's wife a present but decide randomly at what point in the day to raise it with her. Again, one could choose randomly either to offer the present or to offer to take her out for a meal. Furthermore, one could randomly select individuals from one's address book, in order to ring them up to ask them how they are. Hence genuine randomness may enter into an agent's own strategy, or it may be introduced into the circumstances of action of others (even without them knowing). It may also be judged that those subject to chance inputs could also subsequently inter-affect one another, thereby contributing massive complexity. This consideration of the introduction of randomness serves to undermine the idea that the behaviour of any of the people concerned could in principle be subsumed within a longer-term deterministic account.

It is worth stressing that no suggestion is being made that the pattern of behaviour of the individuals involved undergoes any gross change across the time when the particular random selection is made. Hence their character, personality, values and knowledge may properly be said to persist; in sum, their behaviour would continue to exhibit familiar tendencies throughout the period: for instance, they continue to be a shy person, interested in rugby union and supportive of a particular political party. Based on this, all manner of fairly safe predictions could be made about their behaviour. So the point of the example is not to establish that you cannot predict human behaviour with a measure of success; no, the point of the example is to establish that in a particular instance precise determination may not be possible across an interval of time.

The choice between alternatives on a random basis is a feature which may be

introduced into the situations described earlier. For instance, the prisoner in a cell with an unlocked door may randomly decide to leave the cell immediately or after five minutes. Someone presented with a lawn and a notice saying they must not walk on it could decide at random whether to do so. Patently any situation where we consider an individual free could have this element introduced into decision making.

Now it is a very familiar feature of life that all manner of “chance events” occur in it, although none may be governed by a strict TRNG. One may decide something on the toss of a coin, the throw of a dice, the turn of a roulette wheel or through participation in a lottery; an individual may even attempt to choose between alternatives “at random” without any external aid. In a contrived way, it may be claimed that any one of these is “deterministic” at the deepest level e.g. that if you know the angle, initial impulse and other information relating to a coin toss the outcome may be predicted. However, what is deeply implausible is that this opens the way to a “before and after” deterministic account in a way that a strict TRNG does not. Thus it is unconvincing to say in the aforementioned cases that deciding which seat or holiday to select on the throw of a dice as opposed to using a TRNG would make any essential difference. For one thing, these other methods may be so refined as to come indefinitely close to TRNG, so considerations of continuity suggest that their use would have the same implications. Hence it seems sound to conclude that the many chance aspects to life cannot be accommodated within an overall deterministic account. In point of fact, a major problem for such an account is that the number of what we understand to be chance events that could conceivably impinge on any specified context of human action at any time is indefinitely huge and it is unclear even in principle how a deterministic account could comprehensively accommodate the totality of them.

It is worth emphasizing that chance enters into life to a considerable extent and perhaps rather more than is commonly realised. Thus I get up intending to go for a walk but it may or may not be raining; half way through my walk I may or may not find I am rubbing a blister; further on, I encounter and engage in conversation with a friend who recounts an incident I find mildly depressing. Indeed chance may, as shown above, enter into the process of human decision-making, or, alternatively, it may enter into the conditions or context of human decision making. It is not too much to claim that chance events are impinging on our lives all the time, many being minor but others being major in their implications for the course of life. Hence the evident failure of deterministic accounts in principle to handle chance elements shaping behaviour is of major significance.

7. The Motivation for Action: The Centrality of Reasons

Let us next look more carefully at how precisely humans choose between options and respond to chance happenings which impinge on their lives. With regard to

the main patterns of motivation of action, one notes a paramount need for humans to define and achieve goals to sustain their pattern of life through extended time. The form this takes is acting on the basis of reasons. Reasons may be facts about the situation we are in or objectives that we hope to achieve. Thus when asked why one is leaving a building, the response may be that it is on fire. When asked why one is going into work the reply may be that it leads to one receiving a wage or salary which sustains one's standard of living. Often the considerations which enter in are relatively complex—there can be factors pulling us this way and that and actual behaviour bears witness to their relative importance. Hence someone can say they would much rather watch television than go into work but they have decided to go in on the basis of longer-term consequences. Complexity also derives from the fact that reasons arise out of people's interests and values but are also shaped by emotional considerations, desires and aversions. In sum, reasons enable humans to negotiate their way through the range of options that are presented in extended time.

So in accounting for what people do, the identification of their reasons for action is of primary importance. However, importantly, as John Searle says, reasons are never sufficient to account for the performance of the action. In one influential account, he puts his position in this way: "The sense of freedom in voluntary action is a sense that the causes of the action, though effective and real in the form of the reasons for the action, are insufficient to determine the action will occur" (Searle, 2001). A consideration which suggests he is right is that however many reasons there are for doing something, one can typically imagine some further factor entering before completion which prevents it from happening. Thus a nurse who is just leaving home to go to the cinema may alter his or her behaviour on learning that a next door neighbour has just had a heart attack and is urgently in need of help. In the terms used earlier, the occurrence and precise timing of the neighbour's heart attack is a chance event impinging on the nurse's life. It may also be added that that particular potential disruptor of the cinema trip could itself be further overtaken by the discovery that emergency para-medical staff have already arrived next door, thus enabling the planned trip to go ahead. This on-off pattern is by no means uncommon in life. Evidently, there is necessary flexibility in human behaviour which enables them to express the priority of particular values. This last is exemplified by the actions of the nurse, who exhibits flexibility in the expression of professional values.

8. Reasons and Causes

It may be recalled that in the suggestive Hume quotation given earlier there was reference both to determinism and causality. Although an extended deterministic account of human decision-making fails, it is not the case that the notion of cause lacks application in that sphere, far from it. Indeed it may be possible to provide a relatively full account of human action in causal terms, even though it is not deterministic in its character. Importantly, a causal factor may be such as

to make behaviour more likely without determining it (Anscombe, 1971). Since we have just said the hallmark of acting freely is acting on the basis of reasons, this raises the issue of the relationship between explanation by reference to reasons and that by reference to causes; also the specific point regarding whether reasons can be causes (Smith, 1998; Laitinen et al., 2013). In point of fact, in everyday English the meanings of the words “reason” and “cause” overlap, but the intention here is to identify a specific difference. That difference has to do with the fact that the reason a person gives for an action is close to being a justification of it, while a cause is not in itself a justification. A causal account may also probe the wider context.

To illuminate matters, one may develop a little the example introduced earlier concerning the nurse who was interrupted on his or her way to the cinema. Suppose what happened, in outline, was this. The nurse had read for the first time in the Sunday newspaper that someone had made a film of the life of Florence Nightingale; he or she was very intrigued having long-term interest in the work and life of that well-known figure; on the following Monday the nurse rang round the main cinema chains and happily found that the film was shortly to be shown locally; a couple of weeks later he or she was about to proceed to the cinema to see the film.

It may be judged at once that one or more chance factors comes into this story, most obviously, it is an essential feature that the nurse becomes aware of the existence of the film in the first place. The nurse might have failed to read the review and missed the film altogether; conceivably they could have heard about it from some other source before it was too late. As we already know the cinema trip was interrupted by the neighbour’s heart attack.

The example illustrates that one makes sense of freely undertaken activity by focusing on reasons, purposes and motivation. In considering a causal account as opposed to one in terms of reasons, it is worth dwelling on the point that the nurse became aware of the film by reading a review in the Sunday newspaper. We would commonly say this gave the nurse a reason for wishing to go to the cinema to see the film, but how could it not figure also in a causal account? How could an individual be motivated to see a specific film locally without first having heard that the film had been made and was being shown locally? Plainly they could not. So there is good reason to believe reasons (in this case that the film is available to be seen locally) may also be causes. But can there be causes which are not reasons, at least in the sense that they would not be cited as such by the person concerned? There can, as is illustrated by the way the cinema trip was interrupted. It is open to an investigator to establish that the prior socialisation of the nurse had been particularly intense, so that he or she would always tend to respond directly to health emergencies whether in or out of uniform. So that could be postulated as a causal factor; it situates behaviour by providing a wider context. It would not, however, be cited by the nurse as a reason for interrupting the cinema visit in order to respond to the sick neighbour. Hence reasons may

be causes but there are also causes which would not be cited as reasons by the person concerned. It is typically cited reasons which may be offered in justification.

9. Praise and Blame

The position established so far fits well with the ways we attribute praise and blame. Were it the case that the extended deterministic account of human behaviour and decision-making held true we would be reacting to people who are prisoners of events. Contrastingly, given that in the main people are properly understood as acting freely and on the basis of reasons, these types of contributions and interventions make sense (Wallace, 1994; Talbert, 2019). Very importantly, humans anticipate the future and rehearse outcomes. It follows that where someone has reasons to act badly, for example against the law, the understanding of possible future punishment gives them a reason to do otherwise. More generally the attribution of praise and blame, and the anticipation that this might be forthcoming, channel behaviour in desired ways. The attribution of praise and blame is a rational corollary of the understanding that people are generally acting freely and on the basis of reasons.

It is also highly relevant that we realise that sometimes people are unable to do the right thing or would have difficulty doing so. The notion of diminished responsibility acknowledges this. Our responses to others are frequently nuanced. For instance, we recognise that someone heavily under the influence of alcohol may act irresponsibly because of their condition, but we do not excuse it when we judge that they freely embarked upon a drinking spree. It is indeed evident that our changing and developing understanding of factors affecting freedom of action feeds into a civilising process; for instance, we recognise as illnesses conditions previously thought to arise from moral defectiveness. So the pattern indicated earlier whereby our developing scientific knowledge shapes our freely chosen behaviour applies here. Despite this, across the vast sweep of behaviour, we quite properly understand ourselves and others as responsible and acting on the basis of reasons. In that context, possible attribution of praise and blame figures among the reasons for our actions.

10. Conclusion

To make progress in understanding the relation between free will and determinism, it proves to be valuable to analyse the conditions of freedom. Not only is the human exercise of free will necessarily dependent upon the operation of causality and of deterministic phenomena, but it is also itself informed by the understanding of these conditions of freedom; indeed, as has been illustrated, the progressively expanded human understanding of phenomena such as gravity and electromagnetism has proved liberating.

A useful next step is to consider the possible character of an overarching deterministic theory, taking account of the existing state of physics and of the spe-

cial sciences. Perhaps surprisingly the conclusion which emerges is that an integrated deterministic account based on physical theory, which is that most often cited as a possibility, far from implying the collapse of human freedom to vanishing point, might have much the same implications for human freedom as do gravity and electromagnetism. In other words, it merely sets certain limitations on, or parameters for, human freedom; in a parallel way, knowledge of that integrated theory could again prove liberating.

Passing on to the special sciences, there are two key points. One is that freely undertaken human action only has reality given the operation of deterministic chemical and electrical processes internal to the human body. The second is that the overarching biological framework provided by the synthesis of the theory of evolution and genetics does not amount to a deterministic system. Far from that set of ideas implying minute determination of human behaviour the opposite is true: humans are understood to possess the flexibility to choose between alternatives in complex and changing situations; in particular they can react to chance interventions in their circumstances. In sum, consideration of the possible character of developing integrated scientific theory does not imply prior determination of human action. This conclusion tends to be reinforced when consideration is given to the conceptual gulf between the various aspects and units employed in scientific accounts and those employed in the understanding of human action and culture.

A basic problem for the notion of an all-embracing deterministic system concerns the way randomness and chance do or could enter human life. It is concluded that an essential feature of free will is that the individual could choose randomly between defined alternatives or they could be presented with randomly chosen elements in their circumstances of action; but the consequences of the outcomes of decisions made in that way cannot be fully accommodated within a deterministic account stretching over an extended time. This conclusion was first drawn narrowly by reference to choices specifically made using TRNG, but it is judged that considerations of continuity suggest that it applies much more widely to the many situations in life where chance factors enter, some of which approach the conditions of TRNG indefinitely closely.

Once the chimera of the universe as a deterministic system recedes, various elements can be seen to link up within our picture of the basis of human action. In respect of the main pattern of human motivation, humans are understood to be acting on the basis of reasons. However, reasons are never sufficient to account for a particular outcome of the action, the main factor being that chance events may impinge or intervene, thereby introducing new reasons and thereby changing the outcome. Hence the flexibility in human life which stems from the genuine choice between alternatives is to be understood as thereby making the action more effective or appropriate. This perspective integrates exactly with the overarching biological framework.

Proceeding further, it proves possible to clarify the place both of reasons and

causes in the explanation of human action. A key point is that reasons may be causes but there are also causes which would not be cited as reasons by the person concerned; causes may also probe the wider context. So also is the rationale for praise and blame secured, with the possible attribution of praise and blame figuring among the reasons for our actions and thereby serving to structure or restructure them. In the sphere of social control, just as in other spheres, the growth in understanding of factors bearing upon human behaviour, some deterministic in their character but others deriving from relevant tendencies, is fundamentally liberating.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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