

Classic Text 04 – Causality

David Hume's *An Enquiry Concerning Human Understanding* is a slim but revolutionary volume on epistemology (the study of knowledge,) that Emanuel Kant was to claim had "woken" him from his "dogmatic slumbers." The extract below, "Of the Idea of Necessary Connexion" goes to the heart of his scepticism over what we ordinarily suppose ties one idea to another and indeed one event to the next such as causation. What Hume discovers is a matter of custom or psychological habit not a product of the will. He then goes on to account for causation without invoking any necessary connection between events.

Though such a line of reasoning may sound rather abstract and esoteric, the text is neither; undermining several fundamental assumptions about how we think we understand events in the world.

Note that the terms "power," "force," and "energy" as used in the text convey the vernacular meanings of the day, rather than the corresponding scientific sense of today.



The Scottish Philosopher, Historian, Economist and Essayist David Hume (1711 – 1776) known for his philosophical empiricism and skepticism.

AN ENQUIRY CONCERNING HUMAN UNDERSTANDING

SECTION VII - OF THE IDEA OF NECESSARY CONNEXION

PART I

THE great advantage of the mathematical sciences above the moral consists in this, that the ideas of the former, being sensible, are always clear and determinate, the smallest distinction between them is immediately perceptible, and the same terms are still expressive of the same ideas, without ambiguity or variation. An oval is never mistaken for a circle, nor an hyperbola for an ellipsis. The isosceles and scalenum are distinguished by boundaries more exact than vice and virtue, right and wrong. If any term be defined in geometry, the mind readily, of itself, substitutes, on all occasions, the definition for the term defined: or even when no definition is employed, the object itself may be presented to the senses, and by that means be steadily and clearly apprehended. But the finer sentiments of the mind,

the operations of the understanding, the various agitations of the passions, though really in themselves distinct, easily escape us, when surveyed by reflection; nor is it in our power to recall the original object, as often as we have occasion to contemplate it. Ambiguity, by this means, is gradually introduced into our reasonings: similar objects are readily taken to be the same: and the conclusion becomes at last very wide of the premises.

One may safely, however, affirm, that, if we consider these sciences in a proper light, their advantages and disadvantages nearly compensate each other, and reduce both of them to a state of equality. If the mind, with greater facility, retains the ideas of geometry clear and determinate, it must carry on a much longer and more intricate chain of reasoning, and compare ideas much wider of each other, in order to reach the abstruser truths of that science. And if moral ideas are apt, without extreme care, to fall into obscurity and confusion, the inferences are always much shorter in these disquisitions, and the intermediate steps, which lead to the conclusion, much fewer than in the sciences which treat of quantity and number. In reality, there is scarcely a proposition in Euclid so simple, as not to consist of more parts, than are to be found in any moral reasoning which runs not into chimera and conceit. Where we trace the principles of the human mind through a few steps, we may be very well satisfied with our progress; considering how soon nature throws a bar to all our enquiries concerning causes, and reduces us to an acknowledgment of our ignorance. The chief obstacle, therefore, to our improvement in the moral or metaphysical sciences is the obscurity of the ideas, and ambiguity of the terms. The principal difficulty in the mathematics is the length of inferences and compass of thought, requisite to the forming of any conclusion. And, perhaps, our progress in natural philosophy is chiefly retarded by the want of proper experiments and phaenomena, which are often discovered by chance, and cannot always be found, when requisite, even by the most diligent and prudent enquiry. As moral philosophy seems hitherto to have received less improvement than either geometry or physics, we may conclude, that, if there be any difference in this respect among these sciences, the difficulties, which obstruct the progress of the former, require superior care and capacity to be surmounted.

There are no ideas, which occur in metaphysics, more obscure and uncertain, than those of power, force, energy or necessary connexion, of which it is every moment necessary for us to treat in all our disquisitions. We shall, therefore, endeavour, in this section, to fix, if possible, the precise meaning of these terms, and thereby remove some part of that obscurity, which is so much complained of in this species of philosophy.

It seems a proposition, which will not admit of much dispute, that all our ideas are nothing but copies of our impressions, or, in other words, that it is impossible for us to think of anything, which we have not antecedently felt, either by our external or internal senses. I have endeavoured^[1] to explain and prove this proposition, and have expressed my hopes, that, by a proper application of it, men may reach a greater clearness and precision in philosophical reasonings, than what they have hitherto been able to attain. Complex ideas, may, perhaps, be well known by definition, which is nothing but an enumeration of those parts or simple ideas, that compose them. But when we have pushed up definitions to the most simple ideas, and find still more ambiguity and obscurity; what resource are we then possessed of? By what invention can we throw light upon these ideas, and render them altogether precise and determinate to our intellectual view? Produce the impressions or original sentiments, from which the ideas are copied. These impressions are all strong and sensible. They admit not of ambiguity. They are not only placed in a full light themselves, but may throw light on their correspondent ideas, which lie in obscurity. And by this means, we may, perhaps, attain a new microscope or species of optics, by which, in the moral sciences, the most minute, and most simple

ideas may be so enlarged as to fall readily under our apprehension, and be equally known with the grossest and most sensible ideas, that can be the object of our enquiry.

To be fully acquainted, therefore, with the idea of power or necessary connexion, let us examine its impression; and in order to find the impression with greater certainty, let us search for it in all the sources, from which it may possibly be derived.

When we look about us towards external objects, and consider the operation of causes, we are never able, in a single instance, to discover any power or necessary connexion; any quality, which binds the effect to the cause, and renders the one an infallible consequence of the other. We only find, that the one does actually, in fact, follow the other. The impulse of one billiard-ball is attended with motion in the second. This is the whole that appears to the outward senses. The mind feels no sentiment or inward impression from this succession of objects: consequently, there is not, in any single, particular instance of cause and effect, any thing which can suggest the idea of power or necessary connexion.

From the first appearance of an object, we never can conjecture what effect will result from it. But were the power or energy of any cause discoverable by the mind, we could foresee the effect, even without experience; and might, at first, pronounce with certainty concerning it, by mere dint of thought and reasoning.

In reality, there is no part of matter, that does ever, by its sensible qualities, discover any power or energy, or give us ground to imagine, that it could produce any thing, or be followed by any other object, which we could denominate its effect. Solidity, extension, motion; these qualities are all complete in themselves, and never point out any other event which may result from them. The scenes of the universe are continually shifting, and one object follows another in an uninterrupted succession; but the power of force, which actuates the whole machine, is entirely concealed from us, and never discovers itself in any of the sensible qualities of body. We know that, in fact, heat is a constant attendant of flame; but what is the connexion between them, we have no room so much as to conjecture or imagine. It is impossible, therefore, that the idea of power can be derived from the contemplation of bodies, in single instances of their operation; because no bodies ever discover any power, which can be the original of this idea.[2]

Since, therefore, external objects as they appear to the senses, give us no idea of power or necessary connexion, by their operation in particular instances, let us see, whether this idea be derived from reflection on the operations of our own minds, and be copied from any internal impression. It may be said, that we are every moment conscious of internal power; while we feel, that, by the simple command of our will, we can move the organs of our body, or direct the faculties of our mind. An act of volition produces motion in our limbs, or raises a new idea in our imagination. This influence of the will we know by consciousness. Hence we acquire the idea of power or energy; and are certain, that we ourselves and all other intelligent beings are possessed of power. This idea, then, is an idea of reflection, since it arises from reflecting on the operations of our own mind, and on the command which is exercised by will, both over the organs of the body and faculties of the soul.

We shall proceed to examine this pretension; and first with regard to the influence of volition over the organs of the body. This influence, we may observe, is a fact, which, like all other natural events, can be known only by experience, and can never be foreseen from any apparent energy or power in the cause, which connects it with the effect, and renders the one an infallible consequence of the other. The motion of our body follows upon the command of our will. Of this we are every moment conscious. But the means, by which this is effected; the energy, by which the will performs so

extraordinary an operation; of this we are so far from being immediately conscious, that it must for ever escape our most diligent enquiry.

For first: Is there any principle in all nature more mysterious than the union of soul with body; by which a supposed spiritual substance acquires such an influence over a material one, that the most refined thought is able to actuate the grossest matter? Were we empowered, by a secret wish, to remove mountains, or control the planets in their orbit; this extensive authority would not be more extraordinary, nor more beyond our comprehension. But if by consciousness we perceived any power or energy in the will, we must know this power; we must know its connexion with the effect; we must know the secret union of soul and body, and the nature of both these substances; by which the one is able to operate, in so many instances, upon the other.

Secondly, We are not able to move all the organs of the body with a like authority; though we cannot assign any reason besides experience, for so remarkable a difference between one and the other. Why has the will an influence over the tongue and fingers, not over the heart or liver? This question would never embarrass us, were we conscious of a power in the former case, not in the latter. We should then perceive, independent of experience, why the authority of will over the organs of the body is circumscribed within such particular limits. Being in that case fully acquainted with the power or force, by which it operates, we should also know, why its influence reaches precisely to such boundaries, and no farther.

A man, suddenly struck with palsy in the leg or arm, or who had newly lost those members, frequently endeavours, at first to move them, and employ them, in their usual offices. Here he is as much conscious of power to command such limbs, as a man in perfect health is conscious of power to actuate any member which remains in its natural state and condition. But consciousness never deceives. Consequently, neither in the one case nor in the other, are we ever conscious of any power. We learn the influence of our will from experience alone. And experience only teaches us, how one event constantly follows another; without instructing us in the secret connexion, which binds them together, and renders them inseparable.

Thirdly, We learn from anatomy, that the immediate object of power in voluntary motion, is not the member itself which is moved, but certain muscles, and nerves, and animal spirits, and, perhaps, something still more minute and more unknown, through which the motion is successively propagated, ere it reach the member itself whose motion is the immediate object of volition. Can there be a more certain proof, that the power, by which this whole operation is performed, so far from being directly and fully known by an inward sentiment or consciousness is, to the last degree, mysterious and unintelligible? Here the mind wills a certain event. Immediately another event, unknown to ourselves, and totally different from the one intended, is produced: This event produces another, equally unknown: till at last, through a long succession, the desired event is produced. But if the original power were felt, it must be known: were it known, its effect also must be known; since all power is relative to its effect. And vice versa, if the effect be not known, the power cannot be known nor felt. How indeed can we be conscious of a power to move our limbs, when we have no such power; but only that to move certain animal spirits, which, though they produce at last the motion of our limbs, yet operate in such a manner as is wholly beyond our comprehension?

We may, therefore, conclude from the whole, I hope, without any temerity, though with assurance; that our idea of power is not copied from any sentiment or consciousness of power within ourselves, when we give rise to animal motion, or apply our limbs to their proper use and office. That their motion follows the command of the will is a matter of common experience, like other natural events:

But the power or energy by which this is effected, like that in other natural events, is unknown and inconceivable.[3]

Shall we then assert, that we are conscious of a power or energy in our own minds, when, by an act or command of our will, we raise up a new idea, fix the mind to the contemplation of it, turn it on all sides, and at last dismiss it for some other idea, when we think that we have surveyed it with sufficient accuracy? I believe the same arguments will prove, that even this command of the will gives us no real idea of force or energy.

First, It must be allowed, that, when we know a power, we know that very circumstance in the cause, by which it is enabled to produce the effect: for these are supposed to be synonymous. We must, therefore, know both the cause and effect, and the relation between them. But do we pretend to be acquainted with the nature of the human soul and the nature of an idea, or the aptitude of the one to produce the other? This is a real creation; a production of something out of nothing: which implies a power so great, that it may seem, at first sight, beyond the reach of any being, less than infinite. At least it must be owned, that such a power is not felt, nor known, nor even conceivable by the mind. We only feel the event, namely, the existence of an idea, consequent to a command of the will: but the manner, in which this operation is performed, the power by which it is produced, is entirely beyond our comprehension.

Secondly, The command of the mind over itself is limited, as well as its command over the body; and these limits are not known by reason, or any acquaintance with the nature of cause and effect, but only by experience and observation, as in all other natural events and in the operation of external objects. Our authority over our sentiments and passions is much weaker than that over our ideas; and even the latter authority is circumscribed within very narrow boundaries. Will any one pretend to assign the ultimate reason of these boundaries, or show why the power is deficient in one case, not in another.

Thirdly, This self-command is very different at different times. A man in health possesses more of it than one languishing with sickness. We are more master of our thoughts in the morning than in the evening: fasting, than after a full meal. Can we give any reason for these variations, except experience? Where then is the power, of which we pretend to be conscious? Is there not here, either in a spiritual or material substance, or both, some secret mechanism or structure of parts, upon which the effect depends, and which, being entirely unknown to us, renders the power or energy of the will equally unknown and incomprehensible?

Volition is surely an act of the mind, with which we are sufficiently acquainted. Reflect upon it. Consider it on all sides. Do you find anything in it like this creative power, by which it raises from nothing a new idea, and with a kind of Fiat, imitates the omnipotence of its Maker, if I may be allowed so to speak, who called forth into existence all the various scenes of nature? So far from being conscious of this energy in the will, it requires as certain experience as that of which we are possessed, to convince us that such extraordinary effects do ever result from a simple act of volition.

The generality of mankind never find any difficulty in accounting for the more common and familiar operations of nature--such as the descent of heavy bodies, the growth of plants, the generation of animals, or the nourishment of bodies by food: but suppose that, in all these cases, they perceive the very force or energy of the cause, by which it is connected with its effect, and is for ever infallible in its operation. They acquire, by long habit, such a turn of mind, that, upon the appearance of the cause, they immediately expect with assurance its usual attendant, and hardly conceive it possible that any other event could result from it. It is only on the discovery of extraordinary phaenomena, such as

earthquakes, pestilence, and prodigies of any kind, that they find themselves at a loss to assign a proper cause, and to explain the manner in which the effect is produced by it. It is usual for men, in such difficulties, to have recourse to some invisible intelligent principle[4] as the immediate cause of that event which surprises them, and which, they think, cannot be accounted for from the common powers of nature. But philosophers, who carry their scrutiny a little farther, immediately perceive that, even in the most familiar events, the energy of the cause is as unintelligible as in the most unusual, and that we only learn by experience the frequent Conjunction of objects, without being ever able to comprehend anything like Connexion between them...

PART II

BUT to hasten to a conclusion of this argument, which is already drawn out to too great a length: we have sought in vain for an idea of power or necessary connexion in all the sources from which we could suppose it to be derived. It appears that, in single instances of the operation of bodies, we never can, by our utmost scrutiny, discover any thing but one event following another, without being able to comprehend any force or power by which the cause operates, or any connexion between it and its supposed effect. The same difficulty occurs in contemplating the operations of mind on body--where we observe the motion of the latter to follow upon the volition of the former, but are not able to observe or conceive the tie which binds together the motion and volition, or the energy by which the mind produces this effect. The authority of the will over its own faculties and ideas is not a whit more comprehensible: so that, upon the whole, there appears not, throughout all nature, any one instance of connexion which is conceivable by us. All events seem entirely loose and separate. One event follows another; but we never can observe any tie between them. They seem conjoined, but never connected. And as we can have no idea of any thing which never appeared to our outward sense or inward sentiment, the necessary conclusion seems to be that we have no idea of connexion or power at all, and that these words are absolutely, without any meaning, when employed either in philosophical reasonings or common life.

But there still remains one method of avoiding this conclusion, and one source which we have not yet examined. When any natural object or event is presented, it is impossible for us, by any sagacity or penetration, to discover, or even conjecture, without experience, what event will result from it, or to carry our foresight beyond that object which is immediately present to the memory and senses. Even after one instance or experiment where we have observed a particular event to follow upon another, we are not entitled to form a general rule, or foretell what will happen in like cases; it being justly esteemed an unpardonable temerity to judge of the whole course of nature from one single experiment, however accurate or certain. But when one particular species of event has always, in all instances, been conjoined with another, we make no longer any scruple of foretelling one upon the appearance of the other, and of employing that reasoning, which can alone assure us of any matter of fact or existence. We then call the one object, Cause; the other, Effect. We suppose that there is some connexion between them; some power in the one, by which it infallibly produces the other, and operates with the greatest certainty and strongest necessity.

It appears, then, that this idea of a necessary connexion among events arises from a number of similar instances which occur of the constant conjunction of these events; nor can that idea ever be suggested by any one of these instances, surveyed in all possible lights and positions. But there is nothing in a number of instances, different from every single instance, which is supposed to be exactly similar; except only, that after a repetition of similar instances, the mind is carried by habit, upon the appearance of one event, to expect its usual attendant, and to believe that it will exist. This connexion, therefore, which we feel in the mind, this customary transition of the imagination from one object to

its usual attendant, is the sentiment or impression from which we form the idea of power or necessary connexion. Nothing farther is in the case. Contemplate the subject on all sides; you will never find any other origin of that idea. This is the sole difference between one instance, from which we can never receive the idea of connexion, and a number of similar instances, by which it is suggested. The first time a man saw the communication of motion by impulse, as by the shock of two billiard balls, he could not pronounce that the one event was connected: but only that it was conjoined with the other. After he has observed several instances of this nature, he then pronounces them to be connected. What alteration has happened to give rise to this new idea of connexion? Nothing but that he now feels these events to be connected in his imagination, and can readily foretell the existence of one from the appearance of the other. When we say, therefore, that one object is connected with another, we mean only that they have acquired a connexion in our thought, and give rise to this inference, by which they become proofs of each other's existence: A conclusion which is somewhat extraordinary, but which seems founded on sufficient evidence. Nor will its evidence be weakened by any general diffidence of the understanding, or sceptical suspicion concerning every conclusion which is new and extraordinary. No conclusions can be more agreeable to scepticism than such as make discoveries concerning the weakness and narrow limits of human reason and capacity.

And what stronger instance can be produced of the surprising ignorance and weakness of the understanding than the present. For surely, if there be any relation among objects which it imports to us to know perfectly, it is that of cause and effect. On this are founded all our reasonings concerning matter of fact or existence. By means of it alone we attain any assurance concerning objects which are removed from the present testimony of our memory and senses. The only immediate utility of all sciences, is to teach us, how to control and regulate future events by their causes. Our thoughts and enquiries are, therefore, every moment, employed about this relation: yet so imperfect are the ideas which we form concerning it, that it is impossible to give any just definition of cause, except what is drawn from something extraneous and foreign to it. Similar objects are always conjoined with similar. Of this we have experience. Suitably to this experience, therefore, we may define a cause to be an object, followed by another, and where all the objects similar to the first are followed by objects similar to the second. Or in other words where, if the first object had not been, the second never had existed. The appearance of a cause always conveys the mind, by a customary transition, to the idea of the effect. Of this also we have experience. We may, therefore, suitably to this experience, form another definition of cause, and call it, an object followed by another, and whose appearance always conveys the thought to that other. But though both these definitions be drawn from circumstances foreign to the cause, we cannot remedy this inconvenience, or attain any more perfect definition, which may point out that circumstance in the cause, which gives it a connexion with its effect. We have no idea of this connexion, nor even any distant notion what it is we desire to know, when we endeavour at a conception of it. We say, for instance, that the vibration of this string is the cause of this particular sound. But what do we mean by that affirmation? We either mean that this vibration is followed by this sound, and that all similar vibrations have been followed by similar sounds; or, that this vibration is followed by this sound, and that upon the appearance of one the mind anticipates the senses, and forms immediately an idea of the other. We may consider the relation of cause and effect in either of these two lights; but beyond these, we have no idea of it.[5]

To recapitulate, therefore, the reasonings of this section: Every idea is copied from some preceding impression or sentiment; and where we cannot find any impression, we may be certain that there is no idea. In all single instances of the operation of bodies or minds, there is nothing that produces any impression, nor consequently can suggest any idea of power or necessary connexion. But when many uniform instances appear, and the same object is always followed by the same event; we then begin to entertain the notion of cause and connexion. We then feel a new sentiment or impression, to wit, a

customary connexion in the thought or imagination between one object and its usual attendant; and this sentiment is the original of that idea which we seek for. For as this idea arises from a number of similar instances, and not from any single instance, it must arise from that circumstance, in which the number of instances differ from every individual instance. But this customary connexion or transition of the imagination is the only circumstance in which they differ. In every other particular they are alike. The first instance which we saw of motion communicated by the shock of two billiard balls (to return to this obvious illustration) is exactly similar to any instance that may, at present, occur to us; except only, that we could not, at first, infer one event from the other; which we are enabled to do at present, after so long a course of uniform experience. I know not whether the reader will readily apprehend this reasoning. I am afraid that, should I multiply words about it, or throw it into a greater variety of lights, it would only become more obscure and intricate. In all abstract reasonings there is one point of view which, if we can happily hit, we shall go farther towards illustrating the subject than by all the eloquence and copious expression in the world. This point of view we should endeavour to reach, and reserve the flowers of rhetoric for subjects which are more adapted to them.

End of Section VII

Footnotes

[1] Section II.

[2] Mr. Locke, in his chapter of power, says that, finding from experience, that there are several new productions in matter, and concluding that there must somewhere be a power capable of producing them, we arrive at last by this reasoning at the idea of power. But no reasoning can ever give us a new, original, simple idea; as this philosopher himself confesses. This, therefore, can never be the origin of that idea.

[3] It may be pretended, that the resistance which we meet with in bodies, obliging us frequently to exert our force, and call up all our power, this gives us the idea of force and power. It is this *nisus*, or strong endeavour, of which we are conscious, that is the original impression from which this idea is copied. But, first, we attribute power to a vast number of objects, where we never can suppose this resistance or exertion of force to take place; to the Supreme Being, who never meets with any resistance; to the mind in its command over its ideas and limbs, in common thinking and motion, where the effect follows immediately upon the will, without any exertion or summoning up of force; to inanimate matter, which is not capable of this sentiment. Secondly, This sentiment of an endeavour to overcome resistance has no known connexion with any event: What follows it, we know by experience; but could not know it a priori. It must, however, be confessed, that the animal *nisus*, which we experience, though it can afford no accurate precise idea of power, enters very much into that vulgar, inaccurate idea, which is formed by it.

[4] [Θεός ἀπό μηχανῆς. In Latin "*deus ex machina*": In Greek and Roman plays, a deity brought in by stage machinery to intervene in the action or resolve a situation.]

[5] According to these explications and definitions, the idea of power is relative as much as that of cause; and both have a reference to an effect, or some other event constantly conjoined with the former. When we consider the unknown circumstance of an object, by which the degree or quantity of its effect is fixed and determined, we call that its power: and accordingly, it is allowed by all philosophers, that the effect is the measure of the power. But if they had any idea of power, as it is in itself, why could not they Measure it in itself? The dispute whether the force of a body in motion be as

its velocity, or the square of its velocity; this dispute, I say, need not be decided by comparing its effects in equal or unequal times; but by a direct mensuration and comparison.

As to the frequent use of the words, Force, Power, Energy, &c., which every where occur in common conversation, as well as in philosophy; that is no proof, that we are acquainted, in any instance, with the connecting principle between cause and effect, or can account ultimately for the production of one thing to another. These words, as commonly used, have very loose meanings annexed to them; and their ideas are very uncertain and confused. No animal can put external bodies in motion without the sentiment of a nusus or endeavour; and every animal has a sentiment or feeling from the stroke or blow of an external object, that is in motion. These sensations, which are merely animal, and from which we can a priori draw no inference, we are apt to transfer to inanimate objects, and to suppose, that they have some such feelings, whenever they transfer or receive motion. With regard to energies, which are exerted, without our annexing to them any idea of communicated motion, we consider only the constant experienced conjunction of the events; and as we feel a customary connexion between the ideas, we transfer that feeling to the objects; as nothing is more usual than to apply to external bodies every internal sensation, which they occasion.

End of Footnotes

Hume's microscope

Hume chief concern in this section is to define the terms "power," "force," "energy" and "necessary connexion" and dispel the notion that any of our sensory qualities are necessarily conjoined. To that end he proposes a metaphorical device by which to clarify obscure or ambiguous concepts such as these. In section II he argued for, but now regards as indisputable, that our ideas are nothing but copies of our sensory impressions. When therefore, we have taken complex ideas and broken them down into their simplest constituent ideas and still find them obscure or ambiguous, we can figuratively, throw light on them by producing the original sensory impressions from which they were copied. If we pursue the metaphor a little further, we can compare the process to that of a microscopy (or some other optical phenomenon,) by which the simplest ideas can be magnified to the point where they can be known with the clarity of our most sensible notions - a strategy he employs in the arguments that follow.

First however Hume focuses his microscope to the idea of necessary connection, only to observe that *we are never able to discover "any quality, which binds the effect to the cause, and renders the one an infallible consequence of the other. We only find that the one does actually, in fact, follow the other."* How might we explain this?

Argument 1

If we knew the power or energy of any cause, we would be able to foresee the effect without having to experience it and since we clearly cannot do so, it follows that we do not know the power or energy of any such cause. In general if we knew the nature of this power then we would intuitively know how our mind and body are related, but since the mind-body problem has not been resolved to everyone's satisfaction, we cannot have knowledge of this power.

Argument 2

Similarly if we had knowledge of this power we would be able intuitively to explain why we have voluntary control over some parts of our body, such as our hands and our tongue, but not over others, such as our liver and heart. And while we now know that this is due to the former being separately innervated by the somatic nervous system and the latter by the autonomic, it is not because we have intuitive knowledge of the major divisions of the nervous system, but because we acquired such knowledge through education. Therefore again, we do not have any knowledge of this mysterious power (or energy of any cause.)

Argument 3

We have no intuitive knowledge of the power of volition to create action (via what Hume calls “muscles, nerves and animal spirits.” Today we would simply call them effectors.) “How indeed can we be conscious of a power to move our limbs, when we have no such power; but only that to move certain animal spirits, which, though they produce at last the motion of our limbs, yet operate in such a manner as is wholly beyond our comprehension?”

From the arguments above we can conclude that our idea of the power or energy of any cause is not a copy of any conscious sentiment within ourselves, because as these arguments demonstrate, we have no such sentiments from which to copy them. Next, Hume advances three corresponding arguments against the notion that we have any idea of the force or energy of these powers as they affect the mind alone.

Having exhausted every alternative explanation, Hume suggests that the source of our knowledge of necessary connection arises out of *observation of constant conjunction of certain impressions across many instances*. Thus people come to believe in necessary connection through custom or habit, and not through any power of the will. Causation therefore may be accounted for in three ways:

1. *An object, followed by another, and where all the objects similar to the first are followed by objects similar to the second.*
2. *Or if the first object had not been, the second [would] never [have] existed.*
3. *By a customary transition, [in the mind] to the idea of the effect.*

Traditional Interpretation (Ontological)

For Hume there are no such things as causes in the external world binding events, objects or any other entities to their effects. Whatever causes there are, are the product of habituation: thus when we see one billiard ball strike another with the second moving off, there is no necessary connection between these events, only that we have come to expect the next because in the past we perceived that they were conjoined. Certainly we cannot observe the transference of momentum from the one ball to the other, yet we can calculate with some precision just where and with what velocity the second ball will go, if we know both the masses and original velocities of each ball. The Hume, as traditionally interpreted, would be unmoved: he would reply that we are merely calculating, with some precision, the way that would be consistent for a ball to move given our very many past observations of similar collisions, and that the notion of causation lies, not in the balls themselves but in our, or any other creature of habit’s mind. Had we never seen and got used to the idea of one billiard ball striking another, we wouldn’t know what to expect, let alone what to calculate.

A counterexample

There are instances where we can actually see what we claim to be a case of causation, such as the parasite *Plasmodium spp.* that causes malaria. Using a real microscope this time, we can observe the organism entering the bloodstream of a human, via the mouthparts of an infected mosquito, thence to the liver and back into the bloodstream again, where it wreaks so much havoc on the organs of the body, only to be drawn up again by another mosquito. Here is a clear cut case of a vector (mosquito) passing on a parasite (*Plasmodium spp.*) to a human host, thus causing disease (malaria.) Were we able to sever any of the links in the lifecycle of the parasite we would have eradicated the disease by now, preventing some one million infant deaths per annum in Africa alone. Clearly this is not simply a phenomenon of the mind of the microscopist (histologist or pathologist,) it something real and out there, that we want to cry out is CAUSING malaria!

Perhaps we have been a little unfair on Hume, who worked in an era before anybody knew about the germ theory of disease. Indeed, at the time, malaria was thought to come from bad air (hence the word: *mal-aria*) associated with swamps. Given that today we have actually identified the disease causing agent, the Hume, as traditionally read, would have to retreat further into scepticism. This would involve claiming that what the histologists and pathologists were seeing under the microscope are nothing more than the constant conjunction of the appearance of stained micro-organisms on the one hand, and disease in the patient from whom the blood was drawn on the other, and that no necessary connection between the two were discoverable. Such a strategy would be incredulous today because we can simply gesture towards ever finer resolutions exhibiting the pathogenic activity of the parasite, from the cellular right down to the genetic and ultimately the molecular level at which they occur. Perhaps a closer reading of just what Hume was, and equally important, was *not* claiming, is justified.

An Epistemic Reading

When reappraising the text we must draw a clear distinction between what Hume claims about the way the world is (ontological) and what we can know about it (epistemic.) If Hume is arguing about the limits of our cognitive abilities with respect to necessary connection, it does not follow that the world *is* one way or another with respect to causality. In other words, it does not follow from the conclusion that we have no psychological means of knowing the origin or nature of causation that there *are* none out there or that that is all that they amount to.

In section V of the *Enquiry* for example, Hume states that even though the problem of induction is not supported by reason, causal inferences are “essential to the subsistence of all human creatures, [and] it is more conformable to the ordinary wisdom of nature to secure so necessary an act of the mind, by some instinct or mechanical tendency, which may be infallible in its operations, may discover itself at the first appearance of life and thought, and may be independent of all the laboured deductions of the understanding. As nature has taught us the use of our limbs, without giving us the knowledge of the muscles and nerves, by which they are actuated; so has she implanted in us an instinct, which carries forward the thought in a correspondent course to that which she has established among external objects; though we are ignorant of those powers and forces, on which this regular course and succession of objects totally depends. As C.M. Lorkwski, (2010 p.5) observes, “Here, Hume seems to have causal inference supported by instinct rather than

reason... [with] reason... a subspecies of instinct..., implying that at least some instinctual faculties are fit for **doxastic** (as related to belief) assent.”

Conclusion

In Hume’s day Physics, Chemistry and Biology were in their infancy, Neurophysiology and Cognitive Science and Molecular Biology were not even dreamed of, therefore there is little surprise that such causal mechanisms as the latter have uncovered would have appeared utterly mysterious to even the most forward thinking philosophers of his time. Were Hume to be somehow teleported to a modern university today, he would be pleasantly surprised that his “custom” view of learning is still taught in Psychology departments under the rubric of Associationist Psychology. He would also be surprised to learn from early 20th century tests with cats, for example, which revealed that they do not appear to possess any faculty by which to make inferences from cause to effect, yet primates, such as chimpanzees on the other hand, were able to generate plans of action based on causal insight to achieve their goals, which transcend mere custom. (Kohler, 1925)

He would also be amazed at the number of causal agents or mediators of cause that Science has identified from sub-atomic particles to microscopic biological entities to phenomena on a cosmic scale. This does not mean that he was outright wrong about causality, if anything he has taught us, we should never assume that conjoined or correlated events or phenomena are necessarily causally linked, unless we can substantively and demonstrably prove otherwise. Accordingly, philosophical scepticism, which requires that all information be supported by evidence, should be the default position of all enquiry.

Finally, Hume included an advertisement to his *Enquiry Concerning Human Understanding* that was first published posthumously in 1777. In it he recants his former work: *A Treatise of Human Nature* which appeared anonymously, referring to it as “that juvenile work,” in favour of the present volume. Clearly Hume was not one for dogma. He was prepared to revise his stance in the light of superior arguments or more compelling evidence, surely an example we could all do to emulate.

Task

1. Do you think that Hume’s microscope is a tool fit for use in similar contexts today or is its applicability limited to this text?
2. We still do not know just what exactly is being transferred from one billiard ball to another when one is struck (certainly we can’t see anything macroscopic or microscopic being passed along,) nor indeed do we know how this happens, although we do have a name for it *i.e.* momentum and a unit by which to quantify it *i.e.* kg.m.s^{-1} . Do you think that Hume would still be justified in maintaining that we are not able to discover “any quality, which binds the effect to the cause, and renders the one an infallible consequence of the other. We only find that the one does actually, in fact, follow the other”?
3. Do you think that the epistemic reading of Hume is a cop out to save him from an untenable variety of his peculiar scepticism? Could he really have been misread for over two centuries?
4. How does Hume’s scepticism, on either reading, affect the cosmological argument, if at all?

Feedback

1. Hume is not entirely correct in claiming that all our ideas are simply copied from sensory impression. Research in cognitive psychology suggests that the process is more complex, including subconscious processes, genetic predisposition to acquiring certain competencies but not others, as well as cultural bias and so on, however it is probably fair to say that most of our conscious ideas do began as sensory impressions. Therefore using a technique like Hume's microscope today might still help to disambiguate *some* obscure concepts if we have been attentive to their sensory origins, if any. The "if any" is important however, because unlike Hume, for whom the absence of any quality binding causes to effects was construed as evidence of the absence causality (according to the ontological interpretation) or absence of any possible knowledge of causality (on the epistemological reading,) the same would not hold sway today. Most obscurities in cognitive science today are remedied by experimental means and mutual assent by researchers, neither of which were available to Hume given the absolute paucity of such knowledge and techniques at the time. In short, Hume's microscope is very much a product of its time.
2. He might be justified but not in the way he originally intended. Although we know so much about classical mechanics, we don't know just what, if any, causal intermediary is at play on such occasions. Yes we call it momentum and we can quantify and say that it is a property of massive objects in motion but further than that we can't say what it is or how it is transferred. All we see is the motion of one ball after another. If we descend to the quantum realm, on which the macroscopic world depends, we are even less sure about the nature of causation because here particles behave probabilistically, even though the equations which govern them are strictly deterministic. Perhaps Hume and a good many traditional sceptics of causality have been asking the wrong sort of questions: if what momentum, force, energy *etc.* are, are what momentum, force, energy *etc. do* (*i.e.* propensities rather than entities to be transferred,) then we have all been making one big **category mistake**, (of which more in the following critical reasoning unit.) For now a single example, owing to Gilbert Ryle, should suffice. Suppose Simon asks you to show him a university because he has never seen one and you oblige. First you show him the lecture theatres, the libraries, the administrative block, some of the laboratories and so on, saying, "There, that is the university." Simon is puzzled and says, "All you have shown me is a bunch of buildings; I still want to see the university." You pause for a moment and realise that you have left out the human element – what would a university be without dedicated people? So next you show him some students, lecturers, professors, librarians, I.T. staff and maybe even introduce him to the vice-chancellor. But Simon is still unimpressed, he tells you, "All you have shown me is a bunch of very clever people. I still want to see the *university!*" Finally you remind yourself that universities are also about research and community upliftment, so you tell him about the many research projects and outreach programs that the university is involved in, convinced that he will finally understand just what a university is. Simon tells you that he is not interested in all the things you have been showing him because, after all, he came to see a UNIVERSITY and you haven't shown him one yet! At this point you realise that Simon has made a **category mistake**. He believes that all the things that you have been showing him, on the one hand and a university, on the other hand belong to separate categories, whereas

you know that they belong to the same category, namely that of a university, which he just can't seem to get his head around. Perhaps traditional sceptics of causality are making category mistake by believing that one ball striking another such that the other moves off with a quantifiable velocity and direction, given that we know the original velocities and masses of the balls, as well as the law of conservation of momentum and the like, belong to one category, while the notion of causality, in this instance, belongs to another category. If the propensity of the balls is to act in the regular, predictable, deterministic, quantifiable way that they do, then surely we do not need to ask *in addition*, "Where is the cause beside?" when the cause of the motion of the balls is just such a set propensities. If physical objects did not have such propensities, they would simply behave otherwise than they do, independent of any extraneous causes. So, could the hunt for causes be futile, not because they don't exist, but because we already know them under a different set of descriptions?

3. The distinction between ontological and epistemic versions of Hume's scepticism regarding causation has only emerged in the secondary literature in the last 30 years, so that historically, it is very recent. Proponents of the epistemic interpretation have pointed to textual evidence consistent with such a reading elsewhere in the *Inquiry* as well as the earlier *Treatise*, suggesting that Hume himself was aware of the distinction, not an afterthought by late 20th century philosophers. Why the traditional ontological interpretation had not been challenged for more than 200 years is probably down to the way that this text has been presented to generations of students of philosophy as it has been here: cherry picked passages presented, out of practical necessity, without the broader context in which they are embedded. Hence the tendency to repeat and cite extracts as "sound bites" rather than substantive, contextualised arguments. And because the former are easier to remember, they tend passed on to the next generation, even though the text has remained literally unchanged.
4. Aristotle's cosmological argument for a First Cause would not be able to proceed under the assumption of ontological scepticism regarding causality because it categorically demands the integrity every causal link from the present state of the Cosmos back to the First Cause. If on the other hand, it did get going under the assumption of epistemic scepticism with regard to causality, Aquinas would have disowned it. A First Cause that is unknowable in principle is not the God of a theist.

Hume's problem of induction will re-emerge in a different guise towards the end Classic Text 16 in the context of a discussion of lawlike vs. non-lawlike generalisations.

Reference

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