Of Reasoning (Thomas Reid)

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By Thomas Reid

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CHAPTER I: OF REASONING IN GENERAL, AND OF DEMONSTRATION

I. Of Reasoning in General, as distinguished from Judgment.

The power of reasoning is very nearly allied to that of judging; and it is of little consequence in the common affairs of life to distinguish them nicely. On this account, the same name is often given to both. We include both under the name of reason. The assent we give to a proposition is called judgment, whether the proposition be self-evident, or derive its evidence by reasoning from other propositions. Yet there is a distinction between reasoning and judging. Reasoning is the process by which we pass from one judgment to another which is the consequence of it. Accordingly, our judgments are distinguished into intuitive, which are not grounded upon any preceding judgment, and discursive, which are deduced from some preceding judgment by reasoning.

In all reasoning, therefore, there must be a proposition inferred, and one or more from which it is inferred. And this power of inferring, or drawing a conclusion, is only another name for reasoning; the proposition inferred being called the conclusion, and the proposition or propositions from which it is inferred, the premises.

Reasoning may consist of many steps; the first conclusion being a premise to a second, that to a third, and so on, till we come to the last conclusion. A process consisting of many steps of this kind is so easily distinguished from judgment, that it is never called by that name. But when there is only a single step to the conclusion, the distinction is less obvious, and the process is sometimes called judgment, sometimes reasoning.

It is not strange, that, in common discourse, judgment and reasoning should not be very nicely distinguished, since they are in some cases confounded even by logicians. We are taught in logic, that judgment is expressed by one proposition, but that reasoning requires two or three. But so various are the modes of speech, that what in one mode is expressed by two or three propositions may in another mode be expressed by one. Thus I may say, God is good; therefore good men shall be happy. This is reasoning, of that kind which logicians call an enthymem, consisting of an antecedent proposition, and a conclusion drawn from it. But this reasoning may be expressed by one proposition, thus: Because God is
good, good men shall be happy. This is what they call a causal proposition, and therefore expresses judgment; yet the enthymem, which is reasoning, expresses no more.

Reasoning, as well as judgment, must be true or false; both are grounded upon evidence which may be probable or demonstrative, and both are accompanied with assent or belief. The power of reasoning is justly accounted one of the prerogatives of human nature; because by it many important truths have been and may be discovered, which without it would be beyond our reach; yet it seems to be only a kind of crutch to a limited understanding. We can conceive an understanding, superior to human, to which that truth appears intuitively which we can only discover by reasoning. For this cause, though we must ascribe judgment to the Almighty, we do not ascribe reasoning to him, because it implies some defect or limitation of understanding. Even among men, to use reasoning in things that are self-evident is trifling; like a man going upon crutches when he can walk upon his legs.

What reasoning is can be understood only by a man who has reasoned, and who is capable of reflecting upon this operation of his own mind. We can define it only by synonymous words or phrases, such as inferring, drawing a conclusion, and the like. The very notion of reasoning, therefore, can enter into the mind by no other channel than that of reflecting upon the operation of reasoning in our own minds; and the notions of premises and conclusion, of a syllogism and all its constituent parts, of an enthymem, sorites, demonstration, paralogism, and many others, have the same origin.

The exercise of reasoning on various subjects, not only strengthens the faculty, but furnishes the mind with a store of materials. Every train of reasoning which is familiar becomes a beaten track in the way to many others. It removes many obstacles which lay in our way, and smooths many roads which we may have occasion to travel in future disquisitions. When men of equal natural parts apply their reasoning power to any subject, the man who has reasoned much on the same or on similar subjects has a like advantage over him who has not, as the mechanic who has store of tools for his work has over him who has his tools to make, or even to invent.

In a train of reasoning, the evidence of every step, where nothing is left to be supplied by the reader or hearer, must be immediately discernible to every man of ripe understanding who has a distinct comprehension of the premises and conclusion, and who compares them together. To be able to comprehend, in one view, a combination of steps of this kind, is more difficult, and seems to require a superior natural ability. In all, it may be much improved by habit.

But the highest talent in reasoning is the invention of proofs; by which, truths remote from the premises are brought to light. In all works of understanding, invention has the highest praise; it requires an extensive view of what relates to the subject, and a quickness in discerning those affinities and relations which may be subservient to the purpose.

In all invention there must be some end in view: and sagacity in finding out the road that leads to this end is, I think, what we call invention. In this chiefly, as I apprehend, and in clear and distinct conceptions, consists that superiority of understanding which we call genius.

In every chain of reasoning, the evidence of the last conclusion can be no greater than that of the weakest link of the chain, whatever may be the strength of the rest.

II. Of Demonstrative Reasoning.

The most remarkable distinction of reasonings is, that some are probable, others demonstrative.

In every step of demonstrative reasoning, the inference is necessary, and we perceive it to be impossible that the conclusion should not follow from the premises. In probable reasoning, the connection between the premises and the conclusion is not necessary, nor do we perceive it to be
impossible that the first should be true while the last is false.

Hence demonstrative reasoning has no degrees, nor can one demonstration be stronger than another, though, in relation to our faculties, one may be more easily comprehended than another. Every demonstration gives equal strength to the conclusion, and leaves no possibility of its being false.

It was, I think, the opinion of all the ancients, that demonstrative reasoning can be applied only to truths that are necessary, and not to those that are contingent. In this, I believe, they judged right. Of all created things, the existence, the attributes, and consequently the relations resulting from those attributes, are contingent. They depend upon the will and power of him who made them. These are matters of fact, and admit not of demonstration.

The field of demonstrative reasoning, therefore, is the various relations of things abstract, that is, of things which we conceive, without regard to their existence. Of these, as they are conceived by the mind, and are nothing but what they are conceived to be, we may have a clear and adequate comprehension. Their relations and attributes are necessary and immutable. They are the things to which the Pythagoreans and Platonists gave the name of ideas. I would beg leave to borrow this meaning of the word idea from those ancient philosophers, and then I must agree with them, that ideas are the only objects about which we can reason demonstratively.

There are many even of our ideas about which we can carry on no considerable train of reasoning. Though they be ever so well defined and perfectly comprehended, yet their agreements and disagreements are few, and these are discerned at once. We may go a step or two in forming a conclusion with regard to such objects, but can go no farther. There are others, about which we may, by a long train of demonstrative reasoning, arrive at conclusions very remote and unexpected.

The reasonings I have met with that can be called strictly demonstrative may, I think, be reduced to two classes. They are either metaphysical, or they are mathematical.

In metaphysical reasoning, the process is always short. The conclusion is but a step or two, seldom more, from the first principle or axiom on which it is grounded, and the different conclusions depend not one upon another.

It is otherwise in mathematical reasoning. Here the field has no limits. One proposition leads on to another, that to a third, and so on without end.

If it should be asked, why demonstrative reasoning has so wide a field in mathematics, while, in other abstract subjects, it is confined within very narrow limits, I conceive this is chiefly owing to the nature of quantity, the object of mathematics.

Every quantity, as it has magnitude, and is divisible into parts without end, so, in respect of its magnitude, it has a certain ratio to every quantity of the kind. The ratios of quantities are innumerable, such as, a half, a third, a tenth, double, triple. All the powers of number are insufficient to express the variety of ratios. For there are innumerable ratios which cannot be perfectly expressed by numbers, such as the ratio of the side to the diagonal of a square, of the circumference of a circle to the diameter. Of this infinite variety of ratios, every one may be clearly conceived, and distinctly expressed, so as to be in no danger of being mistaken for any other. Extended quantities, such as lines, surfaces, solids, besides the variety of relations they have in respect of magnitude, have no less variety in respect of figure; and every mathematical figure may be accurately defined, so as to distinguish it from all others.

There is nothing of this kind in other objects of abstract reasoning. Some of them have various degrees; but these are not capable of measure, nor can they be said to have an assignable ratio to others of the kind. They are either simple, or compounded of a few indivisible parts; and therefore, if we may be allowed the expression, can touch only in few points. But mathematical quantities, being made up of
parts without number, can touch in innumerable points, and be compared in innumerable different ways.

There have been attempts made to measure the merit of actions by the ratios of the affections and principles of action from which they proceed. This may, perhaps, in the way of analogy, serve to illustrate what was before known; but I do not think any truth can be discovered in this way. There are, no doubt, degrees of benevolence, self-love, and other affections; but when we apply ratios to them, I apprehend we have no distinct meaning.

Some demonstrations are called **direct**, others *indirect*. The first kind leads directly to the conclusion to be proved. Of the indirect, some are called demonstrations *ad absurdum*. In these the proposition contradictory to that which is to be proved is demonstrated to be false, or to lead to an absurdity; whence it follows, that its contradictory, that is, the proposition to be proved, is true. This inference is grounded upon an axiom in logic, that, of two contradictory propositions, if one be false, the other must be true.

Another kind of *indirect* demonstration proceeds by enumerating all the suppositions that can possibly be made concerning the proposition to be proved, and then demonstrating that all of them, excepting that which is to be proved, are false; whence it follows, that the excepted supposition is true. Thus one line is proved to be equal to another, by proving first that it cannot be greater, and then that it cannot be less: for it must be either greater, or less, or equal; and two of these suppositions being demonstrated to be false, the third must be true.

All these kinds of demonstration are used in mathematics, and perhaps some others. They have all equal strength. The direct demonstration is preferred where it can be had, for this reason only, as I apprehend, that it is the shortest road to the conclusion. The nature of the evidence and its strength are the same in all: only we are conducted to it by different roads.

### III. How far Morality is capable of Demonstration

What has been said of demonstrative reasoning may help us to judge of an opinion of Mr. Locke, advanced in several places of his *Essay*; —to wit, “that *morality* is capable of demonstration as well as mathematics.”

In Book III. Chap. XL, having observed that, mixed modes, especially those belonging to morality, being such combinations of ideas as the mind puts together of its own choice, the signification of their names may be perfectly and exactly defined, he adds, §16:—“Upon this ground it is that I am bold to think, that morality is capable of demonstration as well as mathematics: since the precise real essence of the things moral words stand for may be perfectly known, and so the congruity or incongruity of the things themselves be certainly discovered, in which consists perfect knowledge. Nor let any one object, that the names of substances are often to be made use of in morality, as well as those of modes, from which will arise obscurity; for, as to substances, when concerned in moral discourses, their divers natures are not so much inquired into as supposed: v. g., when we say that *man is subject, to law*, we mean nothing by *man* but a corporeal rational creature; what the real essence or other qualities of that creature are, in this case, is no way considered.”

Again, in Book IV. Chap. III. §18: —“The idea of a Supreme Being, whose workmanship we are, and the idea of ourselves, being such as are clear in us, would, I suppose, if duly considered and pursued, afford such foundation of our duty and rules of action, as might place morality among the sciences capable of demonstration. The relation of other modes may certainly be perceived, as well as those of number and extension; and I cannot see why they should not be capable of demonstration, if due methods were thought on to examine or pursue their agreement or disagreement.”
He afterwards gives as instances two propositions, as moral propositions of which we may be as certain as of any in mathematics; and considers at large what may have given the advantage to the ideas of quantity, and made, them be thought more capable of certainty and demonstration.

Some of his learned correspondents, particularly his friend Mr. Molyneux, urged and importuned him to compose a system of morals according to the idea he had advanced in his Essay; and, in his answer to these solicitations, he only pleads other occupations, without suggesting any change of his opinion, or any great difficulty in the execution of what was desired.

Those philosophers who think that our determinations in morals are not real judgments, that right and wrong in human conduct are only certain feelings or sensations in the person who contemplates the action, must reject Mr. Locke’s opinion without examination. For if the principles of morals be not a matter of judgment, but of feeling only, there can be no demonstration of them; nor can any other reason be given for them, but that men are so constituted by the Author of their being, as to contemplate with pleasure the actions we call virtuous, and with disgust those we call vicious. But if our determinations in morality be real judgments, and, like all other judgments, be either true or false, it is not unimportant to understand upon what kind of evidence those judgments rest.

The argument offered by Mr. Locke, to show that morality is capable of demonstration, is, that “the precise real essence of the things moral words stand for may be perfectly known, and so the congruity or incongruity of the things themselves be certainly discovered, in which consists perfect knowledge.” The field of demonstration is the various relations of things conceived abstractly, of which we may have perfect and adequate conceptions; and Mr. Locke, taking all the things which moral words stand for to be of this kind, concluded that morality is as capable of demonstration as mathematics.

Now I acknowledge that the names of the virtues and vices, of right and obligation, of liberty and property, stand for things abstract, which may be accurately defined, or, at least, conceived as distinctly and adequately as mathematical quantities. And thence, indeed, it follows, that their mutual relations may be perceived as clearly and certainly as mathematical truths. Of this Mr. Locke gives two pertinent examples: the first, “Where there is no property, there is no injustice,” says he, “a proposition as certain as any demonstration in Euclid.” When injustice is defined to be a violation of property, it is as necessary a truth, that there can be no injustice where there is no property, as that you cannot take from a man that which he has not. The second example is, that “no government allows absolute liberty.” This is a truth no less certain and necessary. But such abstract truths I would call metaphysical rather than moral. We give the name of mathematical to truths that express the relations of quantities considered abstractly; all other abstract truths may be called metaphysical. But if those mentioned by Mr. Locke are to be called moral truths, I agree with him that there are many such that are necessarily true, and that have all the evidence that mathematical truths can have.

It ought, however, to be remembered, that, as was before observed, the relations of things abstract, perceivable by us, excepting those of mathematical quantities, are few, and for the most part immediately discerned, so as not to require that train of reasoning which we call demonstration. Their evidence resembles more that of mathematical axioms than mathematical propositions. This appears in the two propositions given as examples by Mr. Locke. The first follows immediately from the definition of injustice; the second, from the definition of government. Their evidence may more properly be called intuitive than demonstrative. And this I apprehend to be the case, or nearly the case, with all abstract truths that are not mathematical, for the reason given above.

The propositions which I think are properly called moral, are those that affirm some moral obligation to be, or not to be, incumbent on one or more individual persons. To such propositions Mr. Locke’s reasoning does not apply, because the subjects of the proposition are not things whose real essence may be perfectly known. They are the creatures of God; their obligation results from the constitution which God has given them, and the circumstances in which he has placed them. That an individual has
such a constitution, and is placed in such circumstances, is not an abstract and necessary, but a contingent truth. It is a matter of fact, and therefore not capable of demonstrative evidence, which belongs only to necessary truths.

If a man had not the faculty given him by God of perceiving certain things in conduct to be right, and others to be wrong, and of perceiving his obligation to do what is right, and not to do what is wrong, he would not be a moral and accountable being. If a man be endowed with such a faculty, there must be some things which, by this faculty, are immediately discerned to be right, and others to be wrong; and therefore there must be in morals, as in other sciences, first principles, which do not derive their evidence from any antecedent principles, but may be said to be intuitively discerned.

Moral truths, therefore, may be divided into two classes, —to wit, such as are self-evident to every man whose understanding and moral faculty are ripe and such as are deduced by reasoning from those that are self-evident. If the first be not discerned without reasoning, the last never can be by any reasoning. If any man could say with sincerity, that he is conscious of no obligation to consult his own present and future happiness; to be faithful to his engagements; to obey his Maker; to injure no man; I know not what reasoning, either probable or demonstrative, I could use to convince him of any moral duty. As you cannot reason in mathematics with a man who denies the axioms, as little can you reason with a man in morals who denies the first principles of morals. The man who does not, by the light of his own mind, perceive some things in conduct to be right, and others to be wrong, is as incapable of reasoning about morals as a blind man is about colors.

Every man knows certainly, that what he approves in other men he ought to do in like circumstances, and that he ought not to do what he condemns in other men. Every man knows that he ought, with candor, to use the best means of knowing his duty. To every man who has a conscience, these things are self-evident. They are immediate dictates of our moral (acuity, which is a part of the human constitution; and every man condemns himself, whether he will or not, when he knowingly acts contrary to them.

Thus I think it appears, that every man of common understanding knows certainly, and without reasoning, the ultimate ends he ought to pursue, and that reasoning is necessary only to discover the most proper means of attaining them; and in this, indeed, a good man may often be in doubt. Thus, a magistrate knows that it is his duty to promote the good of the community which has intrusted him with authority; and to offer to prove this to him by reasoning would be to affront him. But whether such a scheme of conduct in his office, or another, may best serve that end, he may in many cases be doubtful. I believe, in such cases, he can very rarely have demonstrative evidence. His conscience determines the end he ought to pursue, and he has intuitive evidence that his end is good; but prudence must determine the means of attaining that end; and prudence can very rarely use demonstrative reasoning, but must rest in what appears most probable.

Upon the whole, I agree with Mr. Locke, that propositions expressing the congruities and incongruities of things abstract, which moral words stand for, may have all the evidence of mathematical truths. But this is not peculiar to things which moral words stand for. It is common to abstract propositions of every kind. For instance: —You cannot take from a man what he has not; A man cannot be bound and perfectly free at the same time. I think no man will call these moral truths, but they are necessary truths, and as evident as any in mathematics. Indeed, they are very nearly allied to the two which Mr. Locke gives as instances of moral propositions capable of demonstration. Of such abstract propositions, however, I think it may more properly be said that they have the evidence of mathematical axioms, than that they are capable of demonstration.

There are propositions of another kind, which alone deserve the name of moral propositions. They are such as affirm something to be the duty of persons that really exist. These are not abstract propositions; and therefore Mr. Locke’s reasoning does not apply to them. The truth of all such propositions depends
upon the constitution and circumstances of the persons to whom they are applied.

Of such propositions, there are some that are self-evident to every man that has a conscience; and these are the principles from which all moral reasoning must be drawn. They may be called the axioms of morals. But our reasoning from these axioms to any duty that is not self-evident, can very rarely be demonstrative. Nor is this any detriment to the cause of virtue, because to act against what appears most probable in a matter of duty is as real a trespass against the first principles of morality, as to act against demonstration; and because he who has but one talent in reasoning, and makes the proper use of it, shall be accepted, as well as he to whom God has given ten.

CHAPTER II. OF PROBABLE REASONING.

I. Distinction between Probable and Demonstrative Reasoning

The field of demonstration, as has been observed, is necessary truth; the field of probable reasoning is contingent truth, —not what necessarily must be at all times, but what is, or was, or shall be.

No contingent truth is capable of strict demonstration; but necessary truths may sometimes have probable evidence. Dr. Wallis discovered many important mathematical truths, by that kind of induction which draws a general conclusion from particular premises. This is not strict demonstration, but, in some cases, gives as full conviction as demonstration itself; and a man may be certain that a truth is demonstrable before it ever has been demonstrated. In other cases, a mathematical proposition may have such probable evidence from induction or analogy, as encourages the mathematician to investigate its demonstration. But still the reasoning proper to mathematical and other necessary truths is demonstration; and that which is proper to contingent truths is probable reasoning.

These two kinds of reasoning differ in other respects. In demonstrative reasoning, one argument is as good as a thousand. One demonstration may be more elegant than another; it may be more easily comprehended, or it may be more subservient to some purpose beyond the present. On any of these accounts, it may deserve a preference: but then it is sufficient by itself; it needs no aid from another; it can receive none. To add more demonstrations of the same conclusion would be a kind of tautology in reasoning; because one demonstration, clearly comprehended, gives all the evidence we are capable of receiving.

The strength of probable reasoning, for the most part, depends, not upon any one argument, but upon many, which unite their force, and lead to the same conclusion. Any one of them by itself would be insufficient to convince; but the whole taken together may have a force that is irresistible, so that to desire more evidence would be absurd. “Would any man seek new arguments to prove that there were such persons as King Charles the First, or Oliver Cromwell? Such evidence may be compared to a rope made up of many slender filaments twisted together. The rope has strength more than sufficient to bear the stress laid upon it, though no one of the filaments of which it is composed would be sufficient for that purpose.

It is a common observation, that it is unreasonable to require demonstration for things which do not admit of it. It is no less unreasonable to require reasoning of any kind for things which are known without reasoning. All reasoning must be grounded upon truths which are known without reasoning. In every branch of real knowledge there must be first principles whose truth is known intuitively, without reasoning, either probable or demonstrative. They are not grounded on reasoning, but all reasoning is grounded on them. It has been shown, that there are first principles of necessary truths, and first principles of contingent truths. Demonstrative reasoning is grounded upon the former, and probable reasoning upon the latter.

That we may not be embarrassed by the ambiguity of words, it is proper to observe, that there is a
popular meaning of probable evidence, which ought not to be confounded with the philosophical meaning above explained. In common language, probable evidence is considered as an inferior degree of evidence, and is opposed to certainty; so that what is certain is more than probable, and what is only probable is not certain.

Philosophers consider probable evidence, not as a degree, but as a species of evidence which is opposed, not to certainly, but to another species of evidence called demonstration.

Demonstrative evidence has no degrees; but probable evidence, taken in the philosophical sense, has all degrees, from the very least to the greatest, which we call certainty. That there is such a city as Rome, I am as certain as of any proposition in Euclid; but the evidence is not demonstrative, but of that kind which philosophers call probable. Yet, in common language, it would sound oddly to say, It is probable there is such a city as Rome, because it would imply some degree of doubt or uncertainty.

Taking probable evidence, therefore, in the philosophical sense, as it is opposed to demonstrative, it may have any degree of evidence, from the least to the greatest.

I think, in most cases, we measure the degrees of evidence by the effect they have upon a sound understanding, when comprehended clearly, and without prejudice. Every degree of evidence perceived by the mind produces a proportioned degree of assent or belief. The judgment may be in perfect suspense between two contradictory opinions, when there is no evidence for either, or equal evidence for both. The least preponderancy on one side inclines the judgment in proportion. Belief is mixed with doubt, more or less, until we come to the highest degree of evidence, when all doubt vanishes, and the belief is firm and immovable. This degree of evidence, the highest the human faculties can attain, we call certainty.

II. Different Kinds of Probable Evidence.

Probable evidence not only differs in kind from demonstrative, but is itself of different kinds. The chief of these I shall mention, without pretending to make a complete enumeration.

1. The first kind is that of human testimony, upon which the greatest part of human knowledge is built.

The faith of history depends upon it, as well as the judgment of solemn tribunals with regard to men’s acquired rights, and with regard to their guilt or innocence when they are charged with crimes. A great part of the business of the judge, of counsel at the bar, of the historian, the critic, and the antiquarian, is to canvass and weigh this kind of evidence; and no man can act with common prudence, in the ordinary occurrences of life, who has not some competent judgment of it.

The belief we give to testimony, in many cases, is not solely grounded upon the veracity of the testifier. In a single testimony, we consider the motives a man might have to falsify. If there be no appearance of any such motive, much more if there be motives on the other side, his testimony has weight independent of his moral character. If the testimony be circumstantial, we consider how far the circumstances agree together, and with things that are known. It is so very difficult to fabricate a story, which cannot be detected by a judicious examination of the circumstances, that it acquires evidence by being able to bear such a trial. There is an art in detecting false evidence in judicial proceedings, well known to able judges and barristers; so that I believe few false witnesses leave the bar without suspicion of their guilt.

When there is an agreement of many witnesses, in a great variety of circumstances, without the possibility of a previous concert, the evidence may be equal to that of demonstration.

2. A second kind of probable evidence is the authority of those who are good judges of the point in
question. The supreme court of judicature of the British nation is often determined by the opinion of lawyers in a point of law, of physicians in a point of medicine, and of other artists in what relates to their several professions. And, in the common affairs of life, we frequently rely upon the judgment of others, in points of which we are not proper judges ourselves.

A third kind of probable evidence is that by which we recognize the identity of things, and persons of our acquaintance. That two swords, two horses, or two persons may be so perfectly alike, as not to be distinguishable by those to whom they are best known, cannot be shown to be impossible. But we learn either from nature, or from experience, that it never happens; or so very rarely, that a person or thing well known to us is immediately recognized without any doubt, when we perceive the marks or signs by which we have been accustomed to distinguish it from all other individuals of the kind.

This evidence we rely upon in the most important affairs of life, and by this evidence the identity both of things and of persons is determined in courts of judicature.

A fourth kind of probable evidence is that which we have of men's future actions and conduct, from the general principles of action in man, or from our knowledge of the individuals.

Notwithstanding the folly and vice that are to be found among men, there is a certain degree of prudence and probity which we rely upon in every man that is not insane. If it were not so, no man would be safe in the company of another, and there could be no society among mankind. If men were as much disposed to hurt as to do good, to lie as to speak truth, they could not live together: they would keep at as great a distance from one another as possible, and the race would soon perish. We expect that men will take some care of themselves, of their family, friends, and reputation; that they will not injure others without some temptation; that they will have some gratitude for good offices, and some resentment of injuries.

Such maxims with regard to human conduct are the foundation of all political reasoning, and of common prudence in the conduct of life. Hardly can a man form any project in public or in private life, which does not depend upon the conduct of other men, as well as his own, and which does not go upon the supposition, that men will act such a part in such circumstances. This evidence may be probable in a very high degree, but can never be demonstrative. The best concerted project may fail, and wise counsels may be frustrated, because some individual acted a part which it would have been against all reason to expect.

Another kind of probable evidence, the counterpart of the last, is that by which we collect men's characters and designs from their actions, speech, and other external signs.

We see not men's hearts, nor the principles by which they are actuated; but there are external signs of their principles and dispositions, which, though not certain, may sometimes be more trusted than their professions; and it is from external signs that we must draw all the knowledge we can attain of men's characters.

The next kind of probable evidence I mention is that which mathematicians call the probability of chances.

We attribute some events to chance, because we know only the remote cause which must produce some one event of a number; but know not the more immediate cause which determines a particular event of that number, in preference to the others. I think all the chances about which we reason in mathematics are of this kind. Thus, in throwing a just die upon a table, we say it is an equal chance which of the six sides shall be turned up; because neither the person who throws, nor the bystanders, know the precise measure of force and direction necessary to turn up any one side rather than another. There are here, therefore, six events, one of which must happen; and as all are supposed to have equal probability, the probability of any one side being turned up—the ace, for instance—is as one to the remaining number, five. The probability of turning up two aces with two dice is as one to thirty-five;
because here there are thirty-six events, each of which has equal probability.

Upon such principles as these, the doctrine of chances has furnished a field of demonstrative reasoning of great extent, although the events about which this reasoning is employed be not necessary, but contingent, and be not certain, but probable. This may seem to contradict a principle before advanced, that contingent truths are not capable of demonstration; but it does not: for in the mathematical reasonings about chance, the conclusion demonstrated is not that such an event shall happen, but that the probability of its happening bears such a ratio to the probability of its failing; and this conclusion is necessary upon the suppositions on which it is grounded.

7. The last kind of probable evidence I shall mention is that by which the known laws of nature have been discovered, and the effects which have been produced by them in former ages, or which may be expected in time to come.

The laws of nature are the rules by which the Supreme Being governs the world. We deduce them only from facts that fall within our own observation, or are properly attested by those who have observed them.

The knowledge of some of the laws of nature is necessary to all men in the conduct of life. These are soon discovered, even by savages. They know that fire burns, that water drowns, that bodies gravitate towards the earth. They know that day and night, summer and winter, regularly succeed each other. As far back as their experience and information reach, they know that these have happened regularly; and, upon this ground, they are led, by the constitution of human nature, to expect that they will happen in time to come, in like circumstances.

The knowledge which the philosopher attains of the laws of nature differs from that of the vulgar, not in the first principles on which it is grounded, but in its extent and accuracy. He collects with care the phenomena that lead to the same conclusion, and compares them with those that seem to contradict or to limit it. He observes the circumstances on which every phenomenon depends, and distinguishes them carefully from those that are accidentally conjoined with it. He puts natural bodies in various situations, and applies them to one another in various ways, on purpose to observe the effect; and thus acquires from his senses a more extensive knowledge of the course of nature in a short time, than could be collected by casual observation in many ages.

But what is the result of his laborious researches? It is, that, as far as he has been able to observe, such things have always happened in such circumstances, and such bodies have always been found to have such properties. These are matters of fact, attested by sense, memory, and testimony, just as the few facts which the vulgar know are attested to them.

And what conclusions does the philosopher draw from the facts he has collected? They are, that like events have happened in former times in like circumstances, and will happen in time to come; and these conclusions are built on the very same ground on which the simple rustic concludes that the sun will rise tomorrow.

Facts reduced to general rules, and the consequences of those general rules, are all that we really know of the material world. And the evidence that such general rules have no exceptions, as well as the evidence that they will be the same in time to come as they have been in time past, can never be demonstrative. It is only that species of evidence which philosophers call probable. General rules may have exceptions or limitations which no man ever had occasion to observe. The laws of nature may be changed by Him who established them. But we are led by our constitution to rely upon their continuance with as little doubt as if it was demonstrable.

CHAPTER III: OF MR. HUME’S SKEPTICISM WITH REGARD TO REASON.
I. He reduces all Knowledge to Probability

In the Treatise of Human Nature, Book I. Part IV. Sect I., the author undertakes to prove two points: First, that all that is called human knowledge (meaning demonstrative knowledge) is only probability; and secondly, that this probability, when duly examined, evanishes by degrees, and leaves at last no evidence at all: so that, in the issue, there is no ground to believe any one proposition rather than its contrary, and “all those are certainly fools who reason, or believe anything.”

To pretend to prove by reasoning that there is no force in reason, does indeed look like a philosophical delirium. It is like a man’s pretending to see clearly that he himself and all other men are blind.

Still, it may not be improper to inquire, whether, as the author thinks, this state of mind was produced by a just application of the rules of logic, or, as others may be apt to think, by the misapplication and abuse of them.

First, Because we are fallible, the author infers that all knowledge degenerates into probability.

That man, and probably every created being, is fallible, and that a fallible being cannot have that perfect comprehension and assurance of truth which an infallible being has, I think ought to be granted. It becomes a fallible being to be modest, open to new light, and sensible that, by some false bias, or by rash judging, he may be misled. If this be called a degree of skepticism, I cannot help approving of it, being persuaded that the man who makes the best use he can of the faculties which God has given him, without thinking them more perfect than they really are, may have all the belief that is necessary in the conduct of life, and all that is necessary to his acceptance with his Maker.

It is granted, then, that human judgments ought always to be formed with a humble sense of our fallibility in judging. This is all that can be inferred by the rules of logic from our being fallible. And if this be all that is meant by our knowledge degenerating into probability, I know no person of a different opinion. But it may be observed, that the author here uses the word probability in a sense for which I know no authority but his own. Philosophers understand probability as opposed to demonstration; the vulgar as opposed to certainty but this author understands it as opposed to infallibility, which no man claims.

One who believes himself to be fallible may still hold it to be certain that two and two make four, and that two contradictory propositions cannot both be true. He may believe some things to be probable only, and other things to be demonstrable, without making any pretence to infallibility.

If we use words in their proper meaning, it is impossible that demonstration should degenerate into probability from the imperfection of our faculties. Our judgment cannot change the nature of the things about which we judge. What is really demonstration will still be so, whatever judgment we form concerning it. It may likewise be observed, that, when we mistake that for demonstration which really is not, the consequence of this mistake is, not that demonstration degenerates into probability, but that what we took to be demonstration is no proof at all; for one false step in a demonstration destroys the whole, but cannot turn it into another kind of proof.

Upon the whole, then, this first conclusion of our author, that the fallibility of human judgment turns all knowledge into probability, if understood literally, is absurd; but if it be only a figure of speech, and means no more than that, in all our judgments, we ought to be sensible of our fallibility, and ought to hold our opinions with that modesty that becomes fallible creatures, which I take to be what the author meant, this, I think, nobody denies, nor was it necessary to enter into a laborious proof of it.

II. And all Probability to Nothing
The second point which he attempts to prove is, that this probability, when duly examined, suffers a continual diminution, and at last a total extinction.

The obvious consequence of this is, that no fallible being can have good reason to believe anything at all. But let us hear the proof.

“In every judgment, we ought to correct the first judgment derived from the nature of the object, by another judgment derived from the nature of the understanding. Beside the original uncertainty inherent in the subject, there arises another, derived from the weakness of the faculty which judges. Having adjusted these two uncertainties together, we are obliged, by our reason, to add a new uncertainty, derived from the possibility of error in the estimation we make of the truth and fidelity of our faculties. This is a doubt of which, if we would closely pursue our reasoning, we cannot avoid giving a decision. But this decision, though it should be favorable to our preceding judgment, being founded only on probability, must weaken still further our first evidence. The third uncertainty must in like manner be criticized by a fourth, and so on without end.

“Now, as every one of these uncertainties takes away a part of the original evidence, it must at last be reduced to nothing. Let our first belief be ever so strong, it must infallibly perish by passing through so many examinations, each of which carries off somewhat of its force and vigor. No finite object can subsist under a decrease repeated in infinitum.”

This is the author’s Achillean argument against the evidence of reason, from which he concludes, that a man who would govern his belief by reason must believe nothing at all, and that belief is an act, not of the cogitative, but of the sensitive part of our nature. If there be any such thing as motion, said an ancient skeptic, the swift-footed Achilles could never overtake an old man in a journey. For, suppose the old man to set out a thousand paces before Achilles, and that, while Achilles has travelled the thousand paces, the old man has got five hundred; when Achilles has gone the five hundred, the old man has gone two hundred and fifty; and when Achilles has gone the two hundred and fifty, the old man is still one hundred and twenty-five before him. Repeat these estimations in infinitum, and you will still find the old man foremost; therefore Achilles can never overtake him; therefore there can be no such thing as motion.

The reasoning of the modern skeptic against reason is equally ingenious, and equally convincing. Indeed, they have a great similarity. If we trace the journey of Achilles two thousand paces, we shall find the very point where the old man is overtaken: but this short journey, by dividing it into an infinite number of stages, with corresponding estimations, is made to appear infinite. In like manner, our author, subjecting every judgment to an infinite number of successive probable estimations, reduces the evidence to nothing.

To return, then, to the argument of the modern skeptic. I examine the proof of a theorem of Euclid. It appears to me to be strict demonstration. But I may have overlooked some fallacy; therefore I examine it again and again, but can find no flaw in it. I find all that have examined it agree with me. I have now that evidence of the truth of the proposition which I and all men call demonstration, and that belief of it which we call certainty.

Here my skeptical friend interposes, and assures me, that, the rules of logic reduce this demonstration to no evidence at all. I am willing to hear what step in it he thinks fallacious, and why. He makes no objection to any part of the demonstration, but pleads my fallibility in judging. I have made the proper allowance for this already, by being open to conviction. “But,” says he, “there are two uncertainties, the first inherent in the subject, which I have already shown to have only probable evidence; the second arising from the weakness of the faculty that judges.” I answer, it is the weakness of the faculty only that reduces this demonstration to what you call probability. You must not, therefore, make it a second uncertainty; for it is the same with the first. To take credit twice in an account for the same article is not agreeable to the rules of logic. Hitherto, therefore, there is but one uncertainty, —to wit,
my fallibility in judging.

“But,” says my friend, “you are obliged by reason to add a new uncertainty, derived from the possibility of error in the estimation you make of the truth and fidelity of your faculties.” I answer, —This estimation is ambiguously expressed; it may either mean an estimation of my liableness to err by the misapplication and abuse of my faculties, or it may mean an estimation of my liableness to err by conceiving my faculties to be true and faithful, while they may be false and fallacious in themselves, even when applied in the best manner. I shall consider this estimation in each of these senses.

If the first be the estimation meant, it is true that reason directs us, as fallible creatures, to carry along with us, in all our judgments, a sense of our fallibility. It is true, also, that we are in greater danger of erring in some cases, and less in others; and that this danger of erring may, according to the circumstances of the case, admit of an estimation, which we ought likewise to carry along with us in every judgment we form.

After repeated examination of a proposition of Euclid, I judge it to be strictly demonstrated; this is my first judgment. But as I am liable to err from various causes, I consider how far I may have been misled by any of these causes in this judgment. My decision upon this second point is favorable to my first judgment, and therefore, as I apprehend, must strengthen it. To say, that this decision, because it is only probable, must weaken the first, evidence, seems to me contrary to all rules of logic, and to common sense. The first judgment may be compared to the testimony of a credible witness; the second, after a scrutiny into the character of the witness, wipes off every objection that can be made to it, and therefore surely must confirm, and not weaken, his testimony.

But let us suppose, that, in another case, I examine my first judgment upon some point, and find, that it was attended with unfavorable circumstances. What, in reason, and according to the rules of logic, ought to be the effect of this discovery?

The effect surely will be, and ought to be, to make me less confident in my first judgment, until I examine the point anew in more favorable circumstances. If it be a matter of importance, I return to weigh the evidence of my first judgment. If it was precipitate before, it must now be deliberate in every point. If at first I was in passion, I must now be cool. If I had an interest in the decision, I must place the interest on the other side.

It is evident, that this review of the subject may confirm my first judgment, notwithstanding the suspicious circumstances that attended it. Though the judge was biased or corrupted, it does not follow that the sentence was unjust. The rectitude of the decision does not depend upon the character of the judge, but upon the nature of the case. From that only it must be determined whether the decision be just. The circumstances that rendered it suspicious are mere presumptions, which have no force against direct evidence.

Thus, I have considered the effect of this estimation of our liableness to err in our first judgment, and have allowed to it all the effect that reason and the rules of logic permit. In the case I first supposed, and in every case where we can discover no cause of error, it affords a presumption in favor of the first judgment. In other cases, it may afford a presumption against it. But the rules of logic require that we should not judge by presumptions where we have direct evidence. The effect of an unfavorable presumption should only be, to make us examine the evidence with the greater care.

The skeptic urges, in the last place, that this estimation must be subjected to another estimation, that to another, and so on in infinitum; and as every new estimation takes away from the evidence of the first judgment, it must at last be totally annihilated.

I answer, first, it has been shown above, that the first estimation, supposing it unfavorable, can only afford a presumption against the first judgment; the second, upon the same supposition, will be only the presumption of a presumption; and the third, the presumption that there is a presumption of a
presumption. This infinite series of presumptions resembles an infinite series of quantities decreasing in geometrical proportion, which amounts only to a finite sum. The infinite series of stages of Achilles’s journey after the old man amounts only to two thousand paces; nor can this infinite series of presumptions outweigh one solid argument in favor of the first judgment, supposing them all to be unfavorable to it.

Secondly, I have shown, that the estimation of our first judgment may strengthen it; and the same thing may be said of all the subsequent estimations. It would, therefore, be as reasonable to conclude, that the first judgment will be brought to infallible certainty when this series of estimations is wholly in its favor, as that its evidence will be brought, to nothing by such a series supposed to be wholly unfavorable to it. But, in reality, one serious and cool reexamination of the evidence by which our first judgment is supported has, and, in reason, ought to have, more force to strengthen or weaken it, than an infinite series of such estimations as our author requires.

Thirdly, I know no reason nor rule in logic that requires that such a series of estimations should follow every particular judgment.

The author’s reasoning supposes, that a man, when he forms his first judgment, conceives himself to be infallible; that by a second and subsequent judgment, he discovers that he is not infallible; and that by a third judgment, subsequent to the second, he estimates his liableness to err in such a case as the present.

If the man proceed in this order, I grant that his second judgment will, with good reason, bring down the first from supposed infallibility to fallibility; and that his third judgment will, in some degree, either strengthen or weaken the first, as it is corrected by the second. But every man of understanding proceeds in a contrary order. When about to judge in any particular point, he knows already that he is not infallible. He knows what are the cases in which he is most or least liable to err. The conviction of these things is always present to his mind, and influences the degree of his assent in his first judgment, as far as to him appears reasonable. If he should afterwards find reason to suspect his first judgment, and desires to have all the satisfaction his faculties can give, reason will direct him not to form such a series of estimations upon estimations as this author requires, but to examine the evidence of his first judgment carefully and coolly; and this review may very reasonably, according to its result, either strengthen or weaken, or totally overturn, his first judgment.

This infinite series of estimations, therefore, is not the method that reason directs in order to form our judgment in any case. It is introduced without necessity, without any use but to puzzle the understanding, and to make us think, that to judge, even in the simplest and plainest cases, is a matter of insurmountable difficulty and endless labor; just as the ancient skeptic, to make a journey of two thousand paces appear endless, divided it into an infinite number of stages.

But we observed, that the estimation which our author requires may admit of another meaning, which, indeed, is more agreeable to the expression, but inconsistent with what he advanced before.

By the possibility of error in the estimation of the truth and fidelity of our faculties, may be meant, that we may err by esteeming our faculties true and faithful, while, in fact, they may be false and fallacious, even when used according to the rules of reason and logic.

If this be meant, I answer, first, that the truth and fidelity of our faculty of judging are, and must be, taken for granted in every judgment and in every estimation.

If the skeptic can seriously doubt of the truth and fidelity of his faculty of judging when properly used, and suspend his judgment upon that point till he finds proof, his skepticism admits of no cure by reasoning, and he must even continue in it until he have new faculties given him, which shall have authority to sit in judgment upon the old. Nor is there any need of an endless succession of doubts upon this subject, for the first puts an end to all judgment and reasoning, and to the possibility of conviction.
by that means. The skeptic has here got possession of a stronghold which is impregnable to reasoning, and we must leave him in possession of it, till nature, by other means, makes him give it up.

Secondly, I observe, that this ground of skepticism, from the supposed infidelity of our faculties, contradicts what the author before advanced in this very argument, to wit, that “the rules of the demonstrative sciences are certain and infallible, and that truth is the natural effect of reason, and that error arises from the irruption of other causes.”

But perhaps he made these concessions unwarily. He is therefore at liberty to retract them, and to rest his skepticism upon this sole foundation, that no reasoning can prove the truth and fidelity of our faculties. Here he stands upon firm ground: for it is evident, that every argument offered to prove the truth and fidelity of our faculties takes for granted the thing in question, and is therefore that kind of sophism which logicians call *petitio principii* [“begging the question”].

All we would ask of this kind of skeptic is, that he would be uniform and consistent, and that his practice in life do not belie his profession of skepticism with regard to the fidelity of his faculties: for the want of faith, as well as faith itself, is best shown by works. If a skeptic avoid the fire as much as those who believe it dangerous to go into it, we can hardly avoid thinking his skepticism to be feigned, and not real.

Our author, indeed, was aware, that neither his skepticism, nor that of any other person, was able to endure this trial, and therefore enters a caveat against it. “Neither I,” says he, “nor any other person, was ever sincerely and constantly of that opinion. Nature, by an absolute and uncontrollable necessity, has determined us to judge, as well as to breathe and feel.”

Upon the whole, I see only two conclusions that can be fairly drawn from this profound and intricate reasoning against reason. The first is, that we are fallible in all our judgments and in all our reasonings. The second, that the truth and fidelity of our faculties can never be proved by reasoning; and therefore our trust in them cannot be founded on reasoning. If the last be what the author calls his hypothesis, I subscribe to it, and think it not an hypothesis, but a manifest truth; though I conceive it to be very improperly expressed by saying that belief is more properly an act of the sensitive than of the cogitative part of our nature.

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