

IMMANUEL KANT

KANT'S
PROLEGOMENA

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Kant's Prolegomena

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Kant I.

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Immanuel Kant

Kant's Prolegomena / To Any Future Metaphysics

PUBLISHERS' PREFACE

KANT'S *Prolegomena*,¹ although a small book, is indubitably the most important of his writings. It furnishes us with a key to his main work, *The Critique of Pure Reason*; in fact, it is an extract containing all the salient ideas of Kant's system. It approaches the subject in the simplest and most direct way, and is therefore best adapted as an introduction into his philosophy. For this reason, The Open Court Publishing Company has deemed it advisable to bring out a new edition of the work, keeping in view its broader use as a preliminary survey and explanation of Kant's philosophy in general. In order to make the book useful for this broader purpose, the editor has not only stated his own views concerning the problem underlying the *Prolegomena* (see page 167 et seq.), but has also collected the most important materials which have reference to Kant's philosophy, or to the reception which was accorded to it in various quarters (see page 241 et seq.). The selections have not been made from a partisan standpoint, but have been chosen with a view to characterising the attitude of different minds, and to directing the student to the best literature on the subject.

It is not without good reasons that the appearance of the *Critique of Pure Reason* is regarded as the beginning of a new era in the history of philosophy; and so it seems that a comprehension of Kant's position, whether we accept or reject it, is indispensable to the student of philosophy. It is not his solution which makes the sage of Königsberg the initiator of modern thought, but his formulation of the problem.

* * *

The present translation is practically new, but it goes without saying that the editor utilised the labors of his predecessors, among whom Prof. John P. Mahaffy and John H. Bernard deserve special credit. Richardson's translation of 1818 may be regarded as superseded and has not been consulted, but occasional reference has been made to that of Prof. Ernest Belfort Bax. Considering the difficulties under which even these translators labored we must recognise the fact that they did their work well, with painstaking diligence, great love of the subject, and good judgment. The editor of the present translation has the advantage of being to the manor born; moreover, he is pretty well versed in Kant's style; and wherever he differs from his predecessors in the interpretation of a construction, he has deviated from them not without good reasons. Nevertheless there are some passages which will still remain doubtful, though happily they are of little consequence.

As a *curiosum* in Richardson's translation Professor Mahaffy mentions that the words *widersinnig gewundene Schnecken*, which simply means "symmetric helices,"² are rendered by "snails rolled up contrary to all sense" – a wording that is itself contrary to all sense and makes the whole paragraph unintelligible. We may add an instance of another mistake that misses the mark. Kant employs in the Appendix a word that is no longer used in German. He speaks of the *Cento der*

¹ Prolegomena means literally prefatory or introductory remarks. It is the neuter plural of the present passive participle of προλέγειν, to speak before, i.e., to make introductory remarks before beginning one's regular discourse.

² Mahaffy not incorrectly translates "spirals winding opposite ways," and Mr. Bax follows him verbatim even to the repetition of the footnote.

Metaphysik as having *neue Lappen* and *einen veränderten Zuschnitt*. Mr. Bax translates *Cento* by "body," *Lappen* by "outgrowths," and *Zuschnitt* by "figure." His mistake is perhaps not less excusable than Richardson's; it is certainly not less comical, and it also destroys the sense, which in the present case is a very striking simile. *Cento* is a Latin word³ derived from the Greek κέντρον,⁴ meaning "a garment of many patches sewed together," or, as we might now say, "a crazy quilt."

* * *

In the hope that this book will prove useful, The Open Court Publishing Company offers it as a help to the student of philosophy.

P.C

³ The French *cento* is still in use.

⁴ κέντρον, (1) one that bears the marks of the κέντρο, goad; a rogue, (2) a patched cloth; (3) any kind of patchwork, especially verses made up of scraps from other authors.

INTRODUCTION

THESE Prolegomena are destined for the use, not of pupils, but of future teachers, and even the latter should not expect that they will be serviceable for the systematic exposition of a ready-made science, but merely for the discovery of the science itself.

There are scholarly men, to whom the history of philosophy (both ancient and modern) is philosophy itself; for these the present Prolegomena are not written. They must wait till those who endeavor to draw from the fountain of reason itself have completed their work; it will then be the historian's turn to inform the world of what has been done. Unfortunately, nothing can be said, which in their opinion has not been said before, and truly the same prophecy applies to all future time; for since the human reason has for many centuries speculated upon innumerable objects in various ways, it is hardly to be expected that we should not be able to discover analogies for every new idea among the old sayings of past ages.

My object is to persuade all those who think Metaphysics worth studying, that it is absolutely necessary to pause a moment, and, neglecting all that has been done, to propose first the preliminary question, 'Whether such a thing as metaphysics be at all possible?'

If it be a science, how comes it that it cannot, like other sciences, obtain universal and permanent recognition? If not, how can it maintain its pretensions, and keep the human mind in suspense with hopes, never ceasing, yet never fulfilled? Whether then we demonstrate our knowledge or our ignorance in this field, we must come once for all to a definite conclusion respecting the nature of this so-called science, which cannot possibly remain on its present footing. It seems almost ridiculous, while every other science is continually advancing, that in this, which pretends to be Wisdom incarnate, for whose oracle every one inquires, we should constantly move round the same spot, without gaining a single step. And so its followers having melted away, we do not find men confident of their ability to shine in other sciences venturing their reputation here, where everybody, however ignorant in other matters, may deliver a final verdict, as in this domain there is as yet no standard weight and measure to distinguish sound knowledge from shallow talk.

After all it is nothing extraordinary in the elaboration of a science, when men begin to wonder how far it has advanced, that the question should at last occur, whether and how such a science is possible? Human reason so delights in constructions, that it has several times built up a tower, and then razed it to examine the nature of the foundation. It is never too late to become wise; but if the change comes late, there is always more difficulty in starting a reform.

The question whether a science be possible, presupposes a doubt as to its actuality. But such a doubt offends the men whose whole possessions consist of this supposed jewel; hence he who raises the doubt must expect opposition from all sides. Some, in the proud consciousness of their possessions, which are ancient, and therefore considered legitimate, will take their metaphysical compendia in their hands, and look down on him with contempt; others, who never see anything except it be identical with what they have seen before, will not understand him, and everything will remain for a time, as if nothing had happened to excite the concern, or the hope, for an impending change.

Nevertheless, I venture to predict that the independent reader of these Prolegomena will not only doubt his previous science, but ultimately be fully persuaded, that it cannot exist unless the demands here stated on which its possibility depends, be satisfied; and, as this has never been done, that there is, as yet, no such thing as Metaphysics. But as it can never cease to be in demand,⁵— since the interests of common sense are intimately interwoven with it, he must confess that a radical reform,

⁵ Says Horace: "Rusticus expectat, dum defluat amnis, at ille Labitur et labetur in omne volubilis aevum;" "A rustic fellow waiteth on the shore For the river to flow away, But the river flows, and flows on as before, And it flows forever and aye."

or rather a new birth of the science after an original plan, are unavoidable, however men may struggle against it for a while.

Since the Essays of Locke and Leibnitz, or rather since the origin of metaphysics so far as we know its history, nothing has ever happened which was more decisive to its fate than the attack made upon it by David Hume. He threw no light on this species of knowledge, but he certainly struck a spark from which light might have been obtained, had it caught some inflammable substance and had its smouldering fire been carefully nursed and developed.

Hume started from a single but important concept in Metaphysics, viz., that of Cause and Effect (including its derivatives force and action, etc.). He challenges reason, which pretends to have given birth to this idea from herself, to answer him by what right she thinks anything to be so constituted, that if that thing be posited, something else also must necessarily be posited; for this is the meaning of the concept of cause. He demonstrated irrefutably that it was perfectly impossible for reason to think *a priori* and by means of concepts a combination involving necessity. We cannot at all see why, in consequence of the existence of one thing, another must necessarily exist, or how the concept of such a combination can arise *a priori*. Hence he inferred, that reason was altogether deluded with reference to this concept, which she erroneously considered as one of her children, whereas in reality it was nothing but a bastard of imagination, impregnated by experience, which subsumed certain representations under the Law of Association, and mistook the subjective necessity of habit for an objective necessity arising from insight. Hence he inferred that reason had no power to think such combinations, even generally, because her concepts would then be purely fictitious, and all her pretended *a priori* cognitions nothing but common experiences marked with a false stamp. In plain language there is not, and cannot be, any such thing as metaphysics at all.⁶

However hasty and mistaken Hume's conclusion may appear, it was at least founded upon investigation, and this investigation deserved the concentrated attention of the brighter spirits of his day as well as determined efforts on their part to discover, if possible, a happier solution of the problem in the sense proposed by him, all of which would have speedily resulted in a complete reform of the science.

But Hume suffered the usual misfortune of metaphysicians, of not being understood. It is positively painful to see how utterly his opponents, Reid, Oswald, Beattie, and lastly Priestley, missed the point of the problem; for while they were ever taking for granted that which he doubted, and demonstrating with zeal and often with impudence that which he never thought of doubting, they so misconstrued his valuable suggestion that everything remained in its old condition, as if nothing had happened.

The question was not whether the concept of cause was right, useful, and even indispensable for our knowledge of nature, for this Hume had never doubted; but whether that concept could be thought by reason *a priori*, and consequently whether it possessed an inner truth, independent of all experience, implying a wider application than merely to the objects of experience. This was Hume's problem. It was a question concerning the origin, not concerning the indispensable need of the concept. Were the former decided, the conditions of the use and the sphere of its valid application would have been determined as a matter of course.

But to satisfy the conditions of the problem, the opponents of the great thinker should have penetrated very deeply into the nature of reason, so far as it is concerned with pure thinking, – a task which did not suit them. They found a more convenient method of being defiant without any

⁶ Nevertheless Hume called this very destructive science metaphysics and attached to it great value. Metaphysics and morals [he declares in the fourth part of his Essays] are the most important branches of science; mathematics and physics are not nearly so important. But the acute man merely regarded the negative use arising from the moderation of extravagant claims of speculative reason, and the complete settlement of the many endless and troublesome controversies that mislead mankind. He overlooked the positive injury which results, if reason be deprived of its most important prospects, which can alone supply to the will the highest aim for all its endeavor.

insight, viz., the appeal to *common sense*. It is indeed a great gift of God, to possess right, or (as they now call it) plain common sense. But this common sense must be shown practically, by well-considered and reasonable thoughts and words, not by appealing to it as an oracle, when no rational justification can be advanced. To appeal to common sense, when insight and science fail, and no sooner – this is one of the subtle discoveries of modern times, by means of which the most superficial ranter can safely enter the lists with the most thorough thinker, and hold his own. But as long as a particle of insight remains, no one would think of having recourse to this subterfuge. For what is it but an appeal to the opinion of the multitude, of whose applause the philosopher is ashamed, while the popular charlatan glories and confides in it? I should think that Hume might fairly have laid as much claim to common sense as Beattie, and in addition to a critical reason (such as the latter did not possess), which keeps common sense in check and prevents it from speculating, or, if speculations are under discussion, restrains the desire to decide because it cannot satisfy itself concerning its own arguments. By this means alone can common sense remain sound. Chisels and hammers may suffice to work a piece of wood, but for steel-engraving we require an engraver's needle. Thus common sense and speculative understanding are each serviceable in their own way, the former in judgments which apply immediately to experience, the latter when we judge universally from mere concepts, as in metaphysics, where sound common sense, so called in spite of the inapplicability of the word, has no right to judge at all.

I openly confess, the suggestion of David Hume was the very thing, which many years ago first interrupted my dogmatic slumber, and gave my investigations in the field of speculative philosophy quite a new direction. I was far from following him in the conclusions at which he arrived by regarding, not the whole of his problem, but a part, which by itself can give us no information. If we start from a well-founded, but undeveloped, thought, which another has bequeathed to us, we may well hope by continued reflection to advance farther than the acute man, to whom we owe the first spark of light.

I therefore first tried whether Hume's objection could not be put into a general form, and soon found that the concept of the connexion of cause and effect was by no means the only idea by which the understanding thinks the connexion of things *a priori*, but rather that metaphysics consists altogether of such connexions. I sought to ascertain their number, and when I had satisfactorily succeeded in this by starting from a single principle, I proceeded to the deduction of these concepts, which I was now certain were not deduced from experience, as Hume had apprehended, but sprang from the pure understanding. This deduction (which seemed impossible to my acute predecessor, which had never even occurred to any one else, though no one had hesitated to use the concepts without investigating the basis of their objective validity) was the most difficult task ever undertaken in the service of metaphysics; and the worst was that metaphysics, such as it then existed, could not assist me in the least, because this deduction alone can render metaphysics possible. But as soon as I had succeeded in solving Hume's problem not merely in a particular case, but with respect to the whole faculty of pure reason, I could proceed safely, though slowly, to determine the whole sphere of pure reason completely and from general principles, in its circumference as well as in its contents. This was required for metaphysics in order to construct its system according to a reliable method.

But I fear that the execution of Hume's problem in its widest extent (viz., my Critique of the Pure Reason) will fare as the problem itself fared, when first proposed. It will be misjudged because it is misunderstood, and misunderstood because men choose to skim through the book, and not to think through it – a disagreeable task, because the work is dry, obscure, opposed to all ordinary notions, and moreover long-winded. I confess, however, I did not expect to hear from philosophers complaints of want of popularity, entertainment, and facility, when the existence of a highly prized and indispensable cognition is at stake, which cannot be established otherwise than by the strictest rules of methodic precision. Popularity may follow, but is inadmissible at the beginning. Yet as regards a certain obscurity, arising partly from the diffuseness of the plan, owing to which the principal points

of the investigation are easily lost sight of, the complaint is just, and I intend to remove it by the present Prolegomena.

The first-mentioned work, which discusses the pure faculty of reason in its whole compass and bounds, will remain the foundation, to which the Prolegomena, as a preliminary exercise, refer; for our critique must first be established as a complete and perfected science, before we can think of letting Metaphysics appear on the scene, or even have the most distant hope of attaining it.

We have been long accustomed to seeing antiquated knowledge produced as new by taking it out of its former context, and reducing it to system in a new suit of any fancy pattern under new titles. Most readers will set out by expecting nothing else from the Critique; but these Prolegomena may persuade him that it is a perfectly new science, of which no one has ever even thought, the very idea of which was unknown, and for which nothing hitherto accomplished can be of the smallest use, except it be the suggestion of Hume's doubts. Yet ever, he did not suspect such a formal science, but ran his ship ashore, for safety's sake, landing on scepticism, there to let it lie and rot; whereas my object is rather to give it a pilot, who, by means of safe astronomical principles drawn from a knowledge of the globe, and provided with a complete chart and compass, may steer the ship safely, whither he listeth.

If in a new science, which is wholly isolated and unique in its kind, we started with the prejudice that we can judge of things by means of our previously acquired knowledge, which is precisely what has first to be called in question, we should only fancy we saw everywhere what we had already known, the expressions, having a similar sound, only that all would appear utterly metamorphosed, senseless and unintelligible, because we should have as a foundation our own notions, made by long habit a second nature, instead of the author's. But the longwindedness of the work, so far as it depends on the subject, and not the exposition, its consequent unavoidable dryness and its scholastic precision are qualities which can only benefit the science, though they may discredit the book.

Few writers are gifted with the subtilty, and at the same time with the grace, of David Hume, or with the depth, as well as the elegance, of Moses Mendelssohn. Yet I flatter myself I might have made my own exposition popular, had my object been merely to sketch out a plan and leave its completion to others, instead of having my heart in the welfare of the science, to which I had devoted myself so long; in truth, it required no little constancy, and even self-denial, to postpone the sweets of an immediate success to the prospect of a slower, but more lasting, reputation.

Making plans is often the occupation of an opulent and boastful mind, which thus obtains the reputation of a creative genius, by demanding what it cannot itself supply; by censuring, what it cannot improve; and by proposing, what it knows not where to find. And yet something more should belong to a sound plan of a general critique of pure reason than mere conjectures, if this plan is to be other than the usual declamations of pious aspirations. But pure reason is a sphere so separate and self-contained, that we cannot touch a part without affecting all the rest. We can therefore do nothing without first determining the position of each part, and its relation to the rest; for, as our judgment cannot be corrected by anything without, the validity and use of every part depends upon the relation in which it stands to all the rest within the domain of reason.

So in the structure of an organized body, the end of each member can only be deduced from the full conception of the whole. It may, then, be said of such a critique that it is never trustworthy except it be perfectly complete, down to the smallest elements of pure reason. In the sphere of this faculty you can determine either everything or nothing.

But although a mere sketch, preceding the Critique of Pure Reason, would be unintelligible, unreliable, and useless, it is all the more useful as a sequel. For so we are able to grasp the whole, to examine in detail the chief points of importance in the science, and to improve in many respects our exposition, as compared with the first execution of the work.

After the completion of the work I offer here such a plan which is sketched out after an analytical method, while the work itself had to be executed in the synthetical style, in order that the science may present all its articulations, as the structure of a peculiar cognitive faculty, in their natural

combination. But should any reader find this plan, which I publish as the Prolegomena to any future Metaphysics, still obscure, let him consider that not every one is bound to study Metaphysics, that many minds will succeed very well, in the exact and even in deep sciences, more closely allied to practical experience,⁷ while they cannot succeed in investigations dealing exclusively with abstract concepts. In such cases men should apply their talents to other subjects. But he who undertakes to judge, or still more, to construct, a system of Metaphysics, must satisfy the demands here made, either by adopting my solution, or by thoroughly refuting it, and substituting another. To evade it is impossible.

In conclusion, let it be remembered that this much-abused obscurity (frequently serving as a mere pretext under which people hide their own indolence or dullness) has its uses, since all who in other sciences observe a judicious silence, speak authoritatively in metaphysics and make bold decisions, because their ignorance is not here contrasted with the knowledge of others. Yet it does contrast with sound critical principles, which we may therefore commend in the words of Virgil:

"Ignavum, fucos, pecus a praesepibus arcent."

"Bees are defending their hives against drones, those indolent creatures."

⁷ The term *Anschauung* here used means sense-perception. It is that which is given to the senses and apprehended immediately, as an object is seen by merely looking at it. The translation *intuition*, though etymologically correct, is misleading. In the present passage the term is not used in its technical significance but means "practical experience." —*Ed.*

PROLEGOMENA

PREAMBLE ON THE PECULIARITIES OF ALL METAPHYSICAL COGNITION

§ 1. *Of the Sources of Metaphysics*

IF it becomes desirable to formulate any cognition as science, it will be necessary first to determine accurately those peculiar features which no other science has in common with it, constituting its characteristics; otherwise the boundaries of all sciences become confused, and none of them can be treated thoroughly according to its nature.

The characteristics of a science may consist of a simple difference of object, or of the sources of cognition, or of the kind of cognition, or perhaps of all three conjointly. On this, therefore, depends the idea of a possible science and its territory.

First, as concerns the sources of metaphysical cognition, its very concept implies that they cannot be empirical. Its principles (including not only its maxims but its basic notions) must never be derived from experience. It must not be physical but metaphysical knowledge, viz., knowledge lying beyond experience. It can therefore have for its basis neither external experience, which is the source of physics proper, nor internal, which is the basis of empirical psychology. It is therefore *a priori* knowledge, coming from pure Understanding and pure Reason.

But so far Metaphysics would not be distinguishable from pure Mathematics; it must therefore be called pure philosophical cognition; and for the meaning of this term I refer to the Critique of the Pure Reason (II. "Method of Transcendentalism," Chap. I., Sec. i), where the distinction between these two employments of the reason is sufficiently explained. So far concerning the sources of metaphysical cognition.

§ 2. *Concerning the Kind of Cognition which can alone be called Metaphysical*

a. Of the Distinction between Analytical and Synthetical Judgments in general.— The peculiarity of its sources demands that metaphysical cognition must consist of nothing but *a priori* judgments. But whatever be their origin, or their logical form, there is a distinction in judgments, as to their content, according to which they are either merely explicative, adding nothing to the content of the cognition, or expansive, increasing the given cognition: the former may be called analytical, the latter synthetical, judgments.

Analytical judgments express nothing in the predicate but what has been already actually thought in the concept of the subject, though not so distinctly or with the same (full) consciousness. When I say: All bodies are extended, I have not amplified in the least my concept of body, but have only analysed it, as extension was really thought to belong to that concept before the judgment was made, though it was not expressed; this judgment is therefore analytical. On the contrary, this judgment, All bodies have weight, contains in its predicate something not actually thought in the general concept of the body; it amplifies my knowledge by adding something to my concept, and must therefore be called synthetical.

b. The Common Principle of all Analytical Judgments is the Law of Contradiction.— All analytical judgments depend wholly on the law of Contradiction, and are in their nature *a priori* cognitions, whether the concepts that supply them with matter be empirical or not. For the predicate of an affirmative analytical judgment is already contained in the concept of the subject, of which it cannot

be denied without contradiction. In the same way its opposite is necessarily denied of the subject in an analytical, but negative, judgment, by the same law of contradiction. Such is the nature of the judgments: all bodies are extended, and no bodies are unextended (i.e., simple).

For this very reason all analytical judgments are *a priori* even when the concepts are empirical, as, for example, Gold is a yellow metal; for to know this I require no experience beyond my concept of gold as a yellow metal: it is, in fact, the very concept, and I need only analyse it, without looking beyond it elsewhere.

c. Synthetical Judgments require a different Principle from the Law of Contradiction.— There are synthetical *a posteriori* judgments of empirical origin; but there are also others which are proved to be certain *a priori*, and which spring from pure Understanding and Reason. Yet they both agree in this, that they cannot possibly spring from the principle of analysis, viz., the law of contradiction, alone; they require a quite different principle, though, from whatever they may be deduced, they must be subject to the law of contradiction, which must never be violated, even though everything cannot be deduced from it. I shall first classify synthetical judgments.

1. *Empirical Judgments* are always synthetical. For it would be absurd to base an analytical judgment on experience, as our concept suffices for the purpose without requiring any testimony from experience. That body is extended, is a judgment established *a priori*, and not an empirical judgment. For before appealing to experience, we already have all the conditions of the judgment in the concept, from which we have but to elicit the predicate according to the law of contradiction, and thereby to become conscious of the necessity of the judgment, which experience could not even teach us.

2. *Mathematical Judgments* are all synthetical. This fact seems hitherto to have altogether escaped the observation of those who have analysed human reason; it even seems directly opposed to all their conjectures, though incontestably certain, and most important in its consequences. For as it was found that the conclusions of mathematicians all proceed according to the law of contradiction (as is demanded by all apodeictic certainty), men persuaded themselves that the fundamental principles were known from the same law. This was a great mistake, for a synthetical proposition can indeed be comprehended according to the law of contradiction, but only by presupposing another synthetical proposition from which it follows, but never in itself.

First of all, we must observe that all proper mathematical judgments are *a priori*, and not empirical, because they carry with them necessity, which cannot be obtained from experience. But if this be not conceded to me, very good; I shall confine my assertion to *pure Mathematics*, the very notion of which implies that it contains pure *a priori* and not empirical cognitions.

It might at first be thought that the proposition $7 + 5 = 12$ is a mere analytical judgment, following from the concept of the sum of seven and five, according to the law of contradiction. But on closer examination it appears that the concept of the sum of $7 + 5$ contains merely their union in a single number, without its being at all thought what the particular number is that unites them. The concept of twelve is by no means thought by merely thinking of the combination of seven and five; and analyse this possible sum as we may, we shall not discover twelve in the concept. We must go beyond these concepts, by calling to our aid some concrete image (*Anschauung*), i.e., either our five fingers, or five points (as Segner has it in his Arithmetic), and we must add successively the units of the five, given in some concrete image (*Anschauung*), to the concept of seven. Hence our concept is really amplified by the proposition $7 + 5 = 12$, and we add to the first a second, not thought in it. Arithmetical judgments are therefore synthetical, and the more plainly according as we take larger numbers; for in such cases it is clear that, however closely we analyse our concepts without calling visual images (*Anschauung*) to our aid, we can never find the sum by such mere dissection.

All principles of geometry are no less analytical. That a straight line is the shortest path between two points, is a synthetical proposition. For my concept of straight contains nothing of quantity, but only a quality. The attribute of shortness is therefore altogether additional, and cannot be obtained

by any analysis of the concept. Here, too, visualisation (*Anschauung*) must come to aid us. It alone makes the synthesis possible.

Some other principles, assumed by geometers, are indeed actually analytical, and depend on the law of contradiction; but they only serve, as identical propositions, as a method of concatenation, and not as principles, e.g., $a = a$, the whole is equal to itself, or $a + b > a$, the whole is greater than its part. And yet even these, though they are recognised as valid from mere concepts, are only admitted in mathematics, because they can be represented in some visual form (*Anschauung*). What usually makes us believe that the predicate of such apodeictic⁸ judgments is already contained in our concept, and that the judgment is therefore analytical, is the duplicity of the expression, requesting us to think a certain predicate as of necessity implied in the thought of a given concept, which necessity attaches to the concept. But the question is not what we are requested to join in thought *to* the given concept, but what we actually think together with and in it, though obscurely; and so it appears that the predicate belongs to these concepts necessarily indeed, yet not directly but indirectly by an added visualisation (*Anschauung*).

§ 3. A Remark on the General Division of Judgments into Analytical and Synthetical

This division is indispensable, as concerns the Critique of human understanding, and therefore deserves to be called classical, though otherwise it is of little use, but this is the reason why dogmatic philosophers, who always seek the sources of metaphysical judgments in Metaphysics itself, and not apart from it, in the pure laws of reason generally, altogether neglected this apparently obvious distinction. Thus the celebrated Wolf, and his acute follower Baumgarten, came to seek the proof of the principle of Sufficient Reason, which is clearly synthetical, in the principle of Contradiction. In Locke's Essay, however, I find an indication of my division. For in the fourth book (chap. iii. § 9, seq.), having discussed the various connexions of representations in judgments, and their sources, one of which he makes "identity and contradiction" (analytical judgments), and another the coexistence of representations in a subject, he confesses (§ 10) that our *a priori* knowledge of the latter is very narrow, and almost nothing. But in his remarks on this species of cognition, there is so little of what is definite, and reduced to rules, that we cannot wonder if no one, not even Hume, was led to make investigations concerning this sort of judgments. For such general and yet definite principles are not easily learned from other men, who have had them obscurely in their minds. We must hit on them first by our own reflexion, then we find them elsewhere, where we could not possibly have found them at first, because the authors themselves did not know that such an idea lay at the basis of their observations. Men who never think independently have nevertheless the acuteness to discover everything, after it has been once shown them, in what was said long since, though no one ever saw it there before.

§ 4. The General Question of the Prolegomena. – Is Metaphysics at all Possible?

Were a metaphysics, which could maintain its place as a science, really in existence; could we say, here is metaphysics, learn it, and it will convince you irresistibly and irrevocably of its truth: this question would be useless, and there would only remain that other question (which would rather be a test of our acuteness, than a proof of the existence of the thing itself), "How is the science possible, and how does reason come to attain it?" But human reason has not been so fortunate in this case. There is no single book to which you can point as you do to Euclid, and say: This is Metaphysics; here you may find the noblest objects of this science, the knowledge of a highest Being,

⁸ The term *apodeictic* is borrowed by Kant from Aristotle who uses it in the sense of "certain beyond dispute." The word is derived from ἀποδείκνυμι (= *I show*) and is contrasted to dialectic propositions, i.e., such statements as admit of controversy. —Ed.

and of a future existence, proved from principles of pure reason. We can be shown indeed many judgments, demonstrably certain, and never questioned; but these are all analytical, and rather concern the materials and the scaffolding for Metaphysics, than the extension of knowledge, which is our proper object in studying it (§ 2). Even supposing you produce synthetical judgments (such as the law of Sufficient Reason, which you have never proved, as you ought to, from pure reason *a priori*, though we gladly concede its truth), you lapse when they come to be employed for your principal object, into such doubtful assertions, that in all ages one Metaphysics has contradicted another, either in its assertions, or their proofs, and thus has itself destroyed its own claim to lasting assent. Nay, the very attempts to set up such a science are the main cause of the early appearance of scepticism, a mental attitude in which reason treats itself with such violence that it could never have arisen save from complete despair of ever satisfying our most important aspirations. For long before men began to inquire into nature methodically, they consulted abstract reason, which had to some extent been exercised by means of ordinary experience; for reason is ever present, while laws of nature must usually be discovered with labor. So Metaphysics floated to the surface, like foam, which dissolved the moment it was scooped off. But immediately there appeared a new supply on the surface, to be ever eagerly gathered up by some, while others, instead of seeking in the depths the cause of the phenomenon, thought they showed their wisdom by ridiculing the idle labor of their neighbors.

The essential and distinguishing feature of pure mathematical cognition among all other *a priori* cognitions is, that it cannot at all proceed from concepts, but only by means of the construction of concepts (see Critique II., Method of Transcendentalism, chap. I., sect. 1). As therefore in its judgments it must proceed beyond the concept to that which its corresponding visualisation (*Anschauung*) contains, these judgments neither can, nor ought to, arise analytically, by dissecting the concept, but are all synthetical.

I cannot refrain from pointing out the disadvantage resulting to philosophy from the neglect of this easy and apparently insignificant observation. Hume being prompted (a task worthy of a philosopher) to cast his eye over the whole field of *a priori* cognitions in which human understanding claims such mighty possessions, heedlessly severed from it a whole, and indeed its most valuable, province, viz., pure mathematics; for he thought its nature, or, so to speak, the state-constitution of this empire, depended on totally different principles, namely, on the law of contradiction alone; and although he did not divide Judgments in this manner formally and universally as I have done here, what he said was equivalent to this: that mathematics contains only analytical, but metaphysics synthetical, *a priori* judgments. In this, however, he was greatly mistaken, and the mistake had a decidedly injurious effect upon his whole conception. But for this, he would have extended his question concerning the origin of our synthetical judgments far beyond the metaphysical concept of Causality, and included in it the possibility of mathematics *a priori* also, for this latter he must have assumed to be equally synthetical. And then he could not have based his metaphysical judgments on mere experience without subjecting the axioms of mathematics equally to experience, a thing which he was far too acute to do. The good company into which metaphysics would thus have been brought, would have saved it from the danger of a contemptuous ill-treatment, for the thrust intended for it must have reached mathematics, which was not and could not have been Hume's intention. Thus that acute man would have been led into considerations which must needs be similar to those that now occupy us, but which would have gained inestimably by his inimitably elegant style.

Metaphysical judgments, properly so called, are all synthetical. We must distinguish judgments pertaining to metaphysics from metaphysical judgments properly so called. Many of the former are analytical, but they only afford the means for metaphysical judgments, which are the whole end of the science, and which are always synthetical. For if there be concepts pertaining to metaphysics (as, for example, that of substance), the judgments springing from simple analysis of them also pertain to metaphysics, as, for example, substance is that which only exists as subject; and by means of several such analytical judgments, we seek to approach the definition of the concept. But as the analysis of

a pure concept of the understanding pertaining to metaphysics, does not proceed in any different manner from the dissection of any other, even empirical, concepts, not pertaining to metaphysics (such as: air is an elastic fluid, the elasticity of which is not destroyed by any known degree of cold), it follows that the concept indeed, but not the analytical judgment, is properly metaphysical. This science has something peculiar in the production of its *a priori* cognitions, which must therefore be distinguished from the features it has in common with other rational knowledge. Thus the judgment, that all the substance in things is permanent, is a synthetical and properly metaphysical judgment.

If the *a priori* principles, which constitute the materials of metaphysics, have first been collected according to fixed principles, then their analysis will be of great value; it might be taught as a particular part (as a *philosophia definitiva*), containing nothing but analytical judgments pertaining to metaphysics, and could be treated separately from the synthetical which constitute metaphysics proper. For indeed these analyses are not elsewhere of much value, except in metaphysics, i.e., as regards the synthetical judgments, which are to be generated by these previously analysed concepts.

The conclusion drawn in this section then is, that metaphysics is properly concerned with synthetical propositions *a priori*, and these alone constitute its end, for which it indeed requires various dissections of its concepts, viz., of its analytical judgments, but wherein the procedure is not different from that in every other kind of knowledge, in which we merely seek to render our concepts distinct by analysis. But the generation of *a priori* cognition by concrete images as well as by concepts, in fine of synthetical propositions *a priori* in philosophical cognition, constitutes the essential subject of Metaphysics.

Weary therefore as well of dogmatism, which teaches us nothing, as of scepticism, which does not even promise us anything, not even the quiet state of a contented ignorance; disquieted by the importance of knowledge so much needed; and lastly, rendered suspicious by long experience of all knowledge which we believe we possess, or which offers itself, under the title of pure reason: there remains but one critical question on the answer to which our future procedure depends, viz., *Is Metaphysics at all possible?* But this question must be answered not by sceptical objections to the asseverations of some actual system of metaphysics (for we do not as yet admit such a thing to exist), but from the conception, as yet only problematical, of a science of this sort.

In the *Critique of Pure Reason* I have treated this question synthetically, by making inquiries into pure reason itself, and endeavoring in this source to determine the elements as well as the laws of its pure use according to principles. The task is difficult, and requires a resolute reader to penetrate by degrees into a system, based on no data except reason itself, and which therefore seeks, without resting upon any fact, to unfold knowledge from its original germs. *Prolegomena*, however, are designed for preparatory exercises; they are intended rather to point out what we have to do in order if possible to actualise a science, than to propound it. They must therefore rest upon something already known as trustworthy, from which we can set out with confidence, and ascend to sources as yet unknown, the discovery of which will not only explain to us what we knew, but exhibit a sphere of many cognitions which all spring from the same sources. The method of *Prolegomena*, especially of those designed as a preparation for future metaphysics, is consequently analytical.

But it happens fortunately, that though we cannot assume metaphysics to be an actual science, we can say with confidence that certain pure *a priori* synthetical cognitions, pure Mathematics and pure Physics are actual and given; for both contain propositions, which are thoroughly recognised as apodeictically certain, partly by mere reason, partly by general consent arising from experience, and yet as independent of experience. We have therefore some at least uncontested synthetical knowledge *a priori*, and need not ask *whether* it be possible, for it is actual, but *how* it is possible, in order that we may deduce from the principle which makes the given cognitions possible the possibility of all the rest.

The General Problem: How is Cognition from Pure Reason Possible?

§ 5. We have above learned the significant distinction between analytical and synthetical judgments. The possibility of analytical propositions was easily comprehended, being entirely founded on the law of Contradiction. The possibility of synthetical *a posteriori* judgments, of those which are gathered from experience, also requires no particular explanation; for experience is nothing but a continual synthesis of perceptions. There remain therefore only synthetical propositions *a priori*, of which the possibility must be sought or investigated, because they must depend upon other principles than the law of contradiction.

But here we need not first establish the possibility of such propositions so as to ask whether they are possible. For there are enough of them which indeed are of undoubted certainty, and as our present method is analytical, we shall start from the fact, that such synthetical but purely rational cognition actually exists; but we must now inquire into the reason of this possibility, and ask, *how* such cognition is possible, in order that we may from the principles of its possibility be enabled to determine the conditions of its use, its sphere and its limits. The proper problem upon which all depends, when expressed with scholastic precision, is therefore:

How are Synthetic Propositions *a priori* possible?

For the sake of popularity I have above expressed this problem somewhat differently, as an inquiry into purely rational cognition, which I could do for once without detriment to the desired comprehension, because, as we have only to do here with metaphysics and its sources, the reader will, I hope, after the foregoing remarks, keep in mind that when we speak of purely rational cognition, we do not mean analytical, but synthetical cognition.⁹

Metaphysics stands or falls with the solution of this problem: its very existence depends upon it. Let any one make metaphysical assertions with ever so much plausibility, let him overwhelm us with conclusions, if he has not previously proved able to answer this question satisfactorily, I have a right to say: this is all vain baseless philosophy and false wisdom. You speak through pure reason, and claim, as it were to create cognitions *a priori* by not only dissecting given concepts, but also by asserting connexions which do not rest upon the law of contradiction, and which you believe you conceive quite independently of all experience; how do you arrive at this, and how will you justify your pretensions? An appeal to the consent of the common sense of mankind cannot be allowed; for that is a witness whose authority depends merely upon rumor. Says Horace:

"Quodcunque ostendis mihi sic, incredulus odi."

"To all that which thou provest me thus, I refuse to give credence."

The answer to this question, though indispensable, is difficult; and though the principal reason that it was not made long ago is, that the possibility of the question never occurred to anybody, there is yet another reason, which is this that a satisfactory answer to this one question requires a much more persistent, profound, and painstaking reflexion, than the most diffuse work on Metaphysics, which on its first appearance promised immortality to its author. And every intelligent reader, when he carefully

⁹ It is unavoidable that as knowledge advances, certain expressions which have become classical, after having been used since the infancy of science, will be found inadequate and unsuitable, and a newer and more appropriate application of the terms will give rise to confusion. [This is the case with the term "analytical."] The analytical method, so far as it is opposed to the synthetical, is very different from that which constitutes the essence of analytical propositions: it signifies only that we start from what is sought, as if it were given, and ascend to the only conditions under which it is possible. In this method we often use nothing but synthetical propositions, as in mathematical analysis, and it were better to term it the regressive method, in contradistinction to the synthetic or progressive. A principal part of Logic too is distinguished by the name of Analytics, which here signifies the logic of truth in contrast to Dialectics, without considering whether the cognitions belonging to it are analytical or synthetical.

reflects what this problem requires, must at first be struck with its difficulty, and would regard it as insoluble and even impossible, did there not actually exist pure synthetical cognitions *a priori*. This actually happened to David Hume, though he did not conceive the question in its entire universality as is done here, and as must be done, should the answer be decisive for all Metaphysics. For how is it possible, says that acute man, that when a concept is given me, I can go beyond it and connect with it another, which is not contained in it, in such a manner as if the latter necessarily belonged to the former? Nothing but experience can furnish us with such connexions (thus he concluded from the difficulty which he took to be an impossibility), and all that vaunted necessity, or, what is the same thing, all cognition assumed to be *a priori*, is nothing but a long habit of accepting something as true, and hence of mistaking subjective necessity for objective.

Should my reader complain of the difficulty and the trouble which I occasion him in the solution of this problem, he is at liberty to solve it himself in an easier way. Perhaps he will then feel under obligation to the person who has undertaken for him a labor of so profound research, and will rather be surprised at the facility with which, considering the nature of the subject, the solution has been attained. Yet it has cost years of work to solve the problem in its whole universality (using the term in the mathematical sense, viz., for that which is sufficient for all cases), and finally to exhibit it in the analytical form, as the reader finds it here.

All metaphysicians are therefore solemnly and legally suspended from their occupations till they shall have answered in a satisfactory manner the question, "How are synthetic cognitions *a priori* possible?" For the answer contains which they must show when they have anything to offer in the name of pure reason. But if they do not possess these credentials, they can expect nothing else of reasonable people, who have been deceived so often, than to be dismissed without further ado.

If they on the other hand desire to carry on their business, not as a science, but as an art of wholesome oratory suited to the common sense of man, they cannot in justice be prevented. They will then speak the modest language of a rational belief, they will grant that they are not allowed even to conjecture, far less to know, anything which lies beyond the bounds of all possible experience, but only to assume (not for speculative use, which they must abandon, but for practical purposes only) the existence of something that is possible and even indispensable for the guidance of the understanding and of the will in life. In this manner alone can they be called useful and wise men, and the more so as they renounce the title of metaphysicians; for the latter profess to be speculative philosophers, and since, when judgments *a priori* are under discussion, poor probabilities cannot be admitted (for what is declared to be known *a priori* is thereby announced as necessary), such men cannot be permitted to play with conjectures, but their assertions must be either science, or are worth nothing at all.

It may be said, that the entire transcendental philosophy, which necessarily precedes all metaphysics, is nothing but the complete solution of the problem here propounded, in systematical order and completeness, and hitherto we have never had any transcendental philosophy; for what goes by its name is properly a part of metaphysics, whereas the former science is intended first to constitute the possibility of the latter, and must therefore precede all metaphysics. And it is not surprising that when a whole science, deprived of all help from other sciences, and consequently in itself quite new, is required to answer a single question satisfactorily, we should find the answer troublesome and difficult, nay even shrouded in obscurity.

As we now proceed to this solution according to the analytical method, in which we assume that such cognitions from pure reasons actually exist, we can only appeal to two sciences of theoretical cognition (which alone is under consideration here), pure mathematics and pure natural science (physics). For these alone can exhibit to us objects in a definite and actualisable form (*in der Anschauung*), and consequently (if there should occur in them a cognition *a priori*) can show the truth or conformity of the cognition to the object *in concreto*, that is, its actuality, from which we could proceed to the reason of its possibility by the analytic method. This facilitates our work greatly

for here universal considerations are not only applied to facts, but even start from them, while in a synthetic procedure they must strictly be derived *in abstracto* from concepts.

But, in order to rise from these actual and at the same time well-grounded pure cognitions *a priori* to such a possible cognition of the same as we are seeking, viz., to metaphysics as a science, we must comprehend that which occasions it, I mean the mere natural, though in spite of its truth not unsuspected, cognition *a priori* which lies at the bottom of that science, the elaboration of which without any critical investigation of its possibility is commonly called metaphysics. In a word, we must comprehend the natural conditions of such a science as a part of our inquiry, and thus the transcendental problem will be gradually answered by a division into four questions:

1. *How is pure mathematics possible?*

2. *How is pure natural science possible?*

3. *How is metaphysics in general possible?*

4. *How is metaphysics as a science possible?*

It may be seen that the solution of these problems, though chiefly designed to exhibit the essential matter of the Critique, has yet something peculiar, which for itself alone deserves attention. This is the search for the sources of given sciences in reason itself, so that its faculty of knowing something *a priori* may by its own deeds be investigated and measured. By this procedure these sciences gain, if not with regard to their contents, yet as to their proper use, and while they throw light on the higher question concerning their common origin, they give, at the same time, an occasion better to explain their own nature.

FIRST PART OF THE TRANSCENDENTAL PROBLEM HOW IS PURE MATHEMATICS POSSIBLE?

§ 6. HERE is a great and established branch of knowledge, encompassing even now a wonderfully large domain and promising an unlimited extension in the future. Yet it carries with it thoroughly apodeictical certainty, i.e., absolute necessity, which therefore rests upon no empirical grounds. Consequently it is a pure product of reason, and moreover is thoroughly synthetical. [Here the question arises:]

"How then is it possible for human reason to produce a cognition of this nature entirely *a priori*?"

Does not this faculty [which produces mathematics], as it neither is nor can be based upon experience, presuppose some ground of cognition *a priori*, which lies deeply hidden, but which might reveal itself by these its effects, if their first beginnings were but diligently ferreted out?

§ 7. But we find that all mathematical cognition has this peculiarity: it must first exhibit its concept in a visual form (*Anschauung*) and indeed *a priori*, therefore in a visual form which is not empirical, but pure. Without this mathematics cannot take a single step; hence its judgments are always visual, viz., "intuitive"; whereas philosophy must be satisfied with discursive judgments from mere concepts, and though it may illustrate its doctrines through a visual figure, can never derive them from it. This observation on the nature of mathematics gives us a clue to the first and highest condition of its possibility, which is, that some non-sensuous visualisation (called pure intuition, or *reine Anschauung*) must form its basis, in which all its concepts can be exhibited or constructed, *in concreto* and yet *a priori*. If we can find out this pure intuition and its possibility, we may thence easily explain how synthetical propositions *a priori* are possible in pure mathematics, and consequently how this science itself is possible. Empirical intuition [viz., sense-perception] enables us without difficulty to enlarge the concept which we frame of an object of intuition [or sense-perception], by new predicates, which intuition [i.e., sense-perception] itself presents synthetically in experience. Pure intuition [viz., the visualisation of forms in our imagination, from which every thing sensual, i.e., every thought of material qualities, is excluded] does so likewise, only with this difference, that in the latter case the synthetical judgment is *a priori* certain and apodeictical, in the former, only *a posteriori* and empirically certain; because this latter contains only that which occurs in contingent empirical intuition, but the former, that which must necessarily be discovered in pure intuition. Here intuition, being an intuition *a priori*, is *before all experience*, viz., before any perception of particular objects, inseparably conjoined with its concept.

§ 8. But with this step our perplexity seems rather to increase than to lessen. For the question now is, "How is it possible to intuit [in a visual form] anything *a priori*?" An intuition [viz., a visual sense-perception] is such a representation as immediately depends upon the presence of the object. Hence it seems impossible to intuit from the outset *a priori*, because intuition would in that event take place without either a former or a present object to refer to, and by consequence could not be intuition. Concepts indeed are such, that we can easily form some of them *a priori*, viz., such as contain nothing but the thought of an object in general; and we need not find ourselves in an immediate relation to the object. Take, for instance, the concepts of Quantity, of Cause, etc. But even these require, in order to make them understood, a certain concrete use – that is, an application to some sense-experience (*Anschauung*), by which an object of them is given us. But how can the intuition of the object [its visualisation] precede the object itself?

§ 9. If our intuition [i.e., our sense-experience] were perforce of such a nature as to represent things as they are in themselves, there would not be any intuition *a priori*, but intuition would be always empirical. For I can only know what is contained in the object in itself when it is present and

given to me. It is indeed even then incomprehensible how the visualising (*Anschauung*) of a present thing should make me know this thing as it is in itself, as its properties cannot migrate into my faculty of representation. But even granting this possibility, a visualising of that sort would not take place *a priori*, that is, before the object were presented to me; for without this latter fact no reason of a relation between my representation and the object can be imagined, unless it depend upon a direct inspiration.

Therefore in one way only can my intuition (*Anschauung*) anticipate the actuality of the object, and be a cognition *a priori*, viz.: if my intuition contains nothing but the form of sensibility, antedating in my subjectivity all the actual impressions through which I am affected by objects.

For that objects of sense can only be intuited according to this form of sensibility I can know *a priori*. Hence it follows: that propositions, which concern this form of sensuous intuition only, are possible and valid for objects of the senses; as also, conversely, that intuitions which are possible *a priori* can never concern any other things than objects of our senses.¹⁰

§ 10. Accordingly, it is only the form of the sensuous intuition by which we can intuit things *a priori*, but by which we can know objects only as they *appear* to us (to our senses), not as they are in themselves; and this assumption is absolutely necessary if synthetical propositions *a priori* be granted as possible, or if, in case they actually occur, their possibility is to be comprehended and determined beforehand.

Now, the intuitions which pure mathematics lays at the foundation of all its cognitions and judgments which appear at once apodeictic and necessary are Space and Time. For mathematics must first have all its concepts in intuition, and pure mathematics in pure intuition, that is, it must construct them. If it proceeded in any other way, it would be impossible to make any headway, for mathematics proceeds, not analytically by dissection of concepts, but synthetically, and if pure intuition be wanting, there is nothing in which the matter for synthetical judgments *a priori* can be given. Geometry is based upon the pure intuition of space. Arithmetic accomplishes its concept of number by the successive addition of units in time; and pure mechanics especially cannot attain its concepts of motion without employing the representation of time. Both representations, however, are only intuitions; for if we omit from the empirical intuitions of bodies and their alterations (motion) everything empirical, or belonging to sensation, space and time still remain, which are therefore pure intuitions that lie *a priori* at the basis of the empirical. Hence they can never be omitted, but at the same time, by their being pure intuitions *a priori*, they prove that they are mere forms of our sensibility, which must precede all empirical intuition, or perception of actual objects, and conformably to which objects can be known *a priori*, but only as they appear to us.

§ 11. The problem of the present section is therefore solved. Pure mathematics, as synthetical cognition *a priori*, is only possible by referring to no other objects than those of the senses. At the basis of their empirical intuition lies a pure intuition (of space and of time) which is *a priori*. This is possible, because the latter intuition is nothing but the mere form of sensibility, which precedes the actual appearance of the objects, in that it, in fact, makes them possible. Yet this faculty of intuiting *a priori* affects not the matter of the phenomenon (that is, the sense-element in it, for this constitutes that which is empirical), but its form, viz., space and time. Should any man venture to doubt that these are determinations adhering not to things in themselves, but to their relation to our sensibility, I should be glad to know how it can be possible to know the constitution of things *a priori*, viz., before we have any acquaintance with them and before they are presented to us. Such, however, is the case with space and time. But this is quite comprehensible as soon as both count for nothing more than formal conditions of our sensibility, while the objects count merely as phenomena; for then the form of the phenomenon, i.e., pure intuition, can by all means be represented as proceeding from ourselves, that is, *a priori*.

¹⁰ This whole paragraph (§ 9) will be better understood when compared with [Remark I.](#), following this section, appearing in the present edition on page 40. —Ed.

§ 12. In order to add something by way of illustration and confirmation, we need only watch the ordinary and necessary procedure of geometers. All proofs of the complete congruence of two given figures (where the one can in every respect be substituted for the other) come ultimately to this that they may be made to coincide; which is evidently nothing else than a synthetical proposition resting upon immediate intuition, and this intuition must be pure, or given *a priori*, otherwise the proposition could not rank as apodeictically certain, but would have empirical certainty only. In that case, it could only be said that it is always found to be so, and holds good only as far as our perception reaches. That everywhere space (which [in its entirety] is itself no longer the boundary of another space) has three dimensions, and that space cannot in any way have more, is based on the proposition that not more than three lines can intersect at right angles in one point; but this proposition cannot by any means be shown from concepts, but rests immediately on intuition, and indeed on pure and *a priori* intuition, because it is apodeictically certain. That we can require a line to be drawn to infinity (*in indefinitum*), or that a series of changes (for example, spaces traversed by motion) shall be infinitely continued, presupposes a representation of space and time, which can only attach to intuition, namely, so far as it in itself is bounded by nothing, for from concepts it could never be inferred. Consequently, the basis of mathematics actually are pure intuitions, which make its synthetical and apodeictically valid propositions possible. Hence our transcendental deduction of the notions of space and of time explains at the same time the possibility of pure mathematics. Without some such deduction its truth may be granted, but its existence could by no means be understood, and we must assume "that everything which can be given to our senses (to the external senses in space, to the internal one in time) is intuited by us as it appears to us, not as it is in itself."

§ 13. Those who cannot yet rid themselves of the notion that space and time are actual qualities inhering in things in themselves, may exercise their acumen on the following paradox. When they have in vain attempted its solution, and are free from prejudices at least for a few moments, they will suspect that the degradation of space and of time to mere forms of our sensuous intuition may perhaps be well founded.

If two things are quite equal in all respects as much as can be ascertained by all means possible, quantitatively and qualitatively, it must follow, that the one can in all cases and under all circumstances replace the other, and this substitution would not occasion the least perceptible difference. This in fact is true of plane figures in geometry; but some spherical figures exhibit, notwithstanding a complete internal agreement, such a contrast in their external relation, that the one figure cannot possibly be put in the place of the other. For instance, two spherical triangles on opposite hemispheres, which have an arc of the equator as their common base, may be quite equal, both as regards sides and angles, so that nothing is to be found in either, if it be described for itself alone and completed, that would not equally be applicable to both; and yet the one cannot be put in the place of the other (being situated upon the opposite hemisphere). Here then is an internal difference between the two triangles, which difference our understanding cannot describe as internal, and which only manifests itself by external relations in space.

But I shall adduce examples, taken from common life, that are more obvious still.

What can be more similar in every respect and in every part more alike to my hand and to my ear, than their images in a mirror? And yet I cannot put such a hand as is seen in the glass in the place of its archetype; for if this is a right hand, that in the glass is a left one, and the image or reflexion of the right ear is a left one which never can serve as a substitute for the other. There are in this case no internal differences which our understanding could determine by thinking alone. Yet the differences are internal as the senses teach, for, notwithstanding their complete equality and similarity, the left hand cannot be enclosed in the same bounds as the right one (they are not congruent); the glove of one hand cannot be used for the other. What is the solution? These objects are not representations of things as they are in themselves, and as the pure understanding would cognise them, but sensuous intuitions, that is, appearances, the possibility of which rests upon the relation of certain things unknown in

themselves to something else, viz., to our sensibility. Space is the form of the external intuition of this sensibility, and the internal determination of every space is only possible by the determination of its external relation to the whole space, of which it is a part (in other words, by its relation to the external sense). That is to say, the part is only possible through the whole, which is never the case with things in themselves, as objects of the mere understanding, but with appearances only. Hence the difference between similar and equal things, which are yet not congruent (for instance, two symmetric helices), cannot be made intelligible by any concept, but only by the relation to the right and the left hands which immediately refers to intuition.

Remark I

Pure Mathematics, and especially pure geometry, can only have objective reality on condition that they refer to objects of sense. But in regard to the latter the principle holds good, that our sense representation is not a representation of things in themselves, but of the way in which they appear to us. Hence it follows, that the propositions of geometry are not the results of a mere creation of our poetic imagination, and that therefore they cannot be referred with assurance to actual objects; but rather that they are necessarily valid of space, and consequently of all that may be found in space, because space is nothing else than the form of all external appearances, and it is this form alone in which objects of sense can be given. Sensibility, the form of which is the basis of geometry, is that upon which the possibility of external appearance depends. Therefore these appearances can never contain anything but what geometry prescribes to them.

It would be quite otherwise if the senses were so constituted as to represent objects as they are in themselves. For then it would not by any means follow from the conception of space, which with all its properties serves to the geometer as an *a priori* foundation, together with what is thence inferred, must be so in nature. The space of the geometer would be considered a mere fiction, and it would not be credited with objective validity, because we cannot see how things must of necessity agree with an image of them, which we make spontaneously and previous to our acquaintance with them. But if this image, or rather this formal intuition, is the essential property of our sensibility, by means of which alone objects are given to us, and if this sensibility represents not things in themselves, but their appearances: we shall easily comprehend, and at the same time indisputably prove, that all external objects of our world of sense must necessarily coincide in the most rigorous way with the propositions of geometry; because sensibility by means of its form of external intuition, viz., by space, the same with which the geometer is occupied, makes those objects at all possible as mere appearances.

It will always remain a remarkable phenomenon in the history of philosophy, that there was a time, when even mathematicians, who at the same time were philosophers, began to doubt, not of the accuracy of their geometrical propositions so far as they concerned space, but of their objective validity and the applicability of this concept itself, and of all its corollaries, to nature. They showed much concern whether a line in nature might not consist of physical points, and consequently that true space in the object might consist of simple [discrete] parts, while the space which the geometer has in his mind [being continuous] cannot be such. They did not recognise that this mental space renders possible the physical space, i.e., the extension of matter; that this pure space is not at all a quality of things in themselves, but a form of our sensuous faculty of representation; and that all objects in space are mere appearances, i.e., not things in themselves but representations of our sensuous intuition. But such is the case, for the space of the geometer is exactly the form of sensuous intuition which we find *a priori* in us, and contains the ground of the possibility of all external appearances (according to their form), and the latter must necessarily and most rigidly agree with the propositions of the geometer, which he draws not from any fictitious concept, but from the subjective basis of all external phenomena, which is sensibility itself. In this and no other way can geometry be made secure as to the undoubted objective reality of its propositions against all the intrigues of a shallow

Metaphysics, which is surprised at them [the geometrical propositions], because it has not traced them to the sources of their concepts.

Remark II

Whatever is given us as object, must be given us in intuition. All our intuition however takes place by means of the senses only; the understanding intuits nothing, but only reflects. And as we have just shown that the senses never and in no manner enable us to know things in themselves, but only their appearances, which are mere representations of the sensibility, we conclude that 'all bodies, together with the space in which they are, must be considered nothing but mere representations in us, and exist nowhere but in our thoughts.' You will say: Is not this manifest idealism?

Idealism consists in the assertion, that there are none but thinking beings, all other things, which we think are perceived in intuition, being nothing but representations in the thinking beings, to which no object external to them corresponds in fact. Whereas I say, that things as objects of our senses existing outside us are given, but we know nothing of what they may be in themselves, knowing only their appearances, i.e., the representations which they cause in us by affecting our senses. Consequently I grant by all means that there are bodies without us, that is, things which, though quite unknown to us as to what they are in themselves, we yet know by the representations which their influence on our sensibility procures us, and which we call bodies, a term signifying merely the appearance of the thing which is unknown to us, but not therefore less actual. Can this be termed idealism? It is the very contrary.

Long before Locke's time, but assuredly since him, it has been generally assumed and granted without detriment to the actual existence of external things, that many of their predicates may be said to belong not to the things in themselves, but to their appearances, and to have no proper existence outside our representation. Heat, color, and taste, for instance, are of this kind. Now, if I go farther, and for weighty reasons rank as mere appearances the remaining qualities of bodies also, which are called primary, such as extension, place, and in general space, with all that which belongs to it (impenetrability or materiality, space, etc.) – no one in the least can adduce the reason of its being inadmissible. As little as the man who admits colors not to be properties of the object in itself, but only as modifications of the sense of sight, should on that account be called an idealist, so little can my system be named idealistic, merely because I find that more, nay,

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