

LOGICAL AND SPIRITUAL REFLECTIONS

By **Avi Sion** PH.D.

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Logical and Spiritual Reflections can be freely read online at TheLogician.net and in various other locations.

It can be purchased, in print and e-book editions, in Amazon.com, Lulu.com and many other online booksellers.

The present document contains **excerpts** from this book, namely: The Abstract; the Contents; and Sample text (Book 1, Chapters 1 and 2; and Book 2, Chapter 2).

Avi Sion (Ph.D. Philosophy) is a researcher and writer in logic, philosophy, and spirituality. He has, since 1990, published original writings on the theory and practice of inductive and deductive logic, phenomenology, epistemology, aetiology, psychology, meditation, ethics, and much more. Over a period of some 28 years, he has published 27 books. He resides in Geneva, Switzerland.

It is very difficult to briefly summarize Avi Sion's philosophy, because it is so wide-ranging. He has labeled it '**Logical Philosophy**', because it is firmly grounded in formal logic, inductive as well as deductive. This original philosophy is dedicated to demonstrating the efficacy of human reason by detailing its actual means; and to show that the epistemological and ethical skepticism which has been increasingly fashionable and destructive since the Enlightenment was (contrary to appearances) quite illogical – the product of ignorant, incompetent and dishonest thinking.

Abstract

Logical and Spiritual Reflections is a collection of six shorter philosophical works, in two parts.

The first part, consisting of **Logical Reflections**, includes:

- **Hume's Problems with Induction**, which is intended to describe and refute some of the main doubts and objections David Hume raised with regard to inductive reasoning. It replaces the so-called problem of induction with a principle of induction. David Hume's notorious skepticism was based on errors of observation and reasoning, with regard to induction, causation, necessity, the self and freewill. These are here pointed out and critically analyzed in detail – and more accurate and logical theories are proposed. This work also includes refutations of Hempel's and Goodman's alleged paradoxes of induction.
- *A Short Critique of Kant's Unreason*, which is a brief critical analysis of some of the salient epistemological and ontological ideas and theses in Immanuel Kant's famous Critique of Pure Reason. It shows that Kant was in no position to criticize reason, because he neither sufficiently understood its workings nor had the logical tools needed for the task. Kant's transcendental reality, his analytic-synthetic dichotomy, his views on experience and concept formation, and on the forms of sensibility (space and time) and understanding (his twelve categories), are here all subjected to rigorous logical evaluation and found deeply flawed – and more coherent theories are proposed in their stead.
- *In Defense of Aristotle's Laws of Thought*, which addresses, from a phenomenological standpoint, numerous modern and Buddhist objections and misconceptions regarding the basic principles of Aristotelian logic. Many people seem to be attacking Aristotle's Laws of Thought nowadays, some coming from the West and some from the East. It is important to review and refute such ideas as they arise.

The second part, consisting of **Spiritual Reflections**, includes:

- *More Meditations*, which is a sequel to the author's earlier work, *Meditations*. It proposes additional practical methods and theoretical insights relating to meditation and Buddhism. It also discusses certain often glossed over issues relating to Buddhism – notably, historicity, idolatry, messianism, importation to the West.
- *Zen Judaism*, which is a frank reflection on the tensions between reason and faith in today's context of knowledge, and on the need to inject Zen-like meditation into Judaism. This work also treats some issues in ethics and theodicy.
- *No to Sodom*, which is an essay against homosexuality, using biological, psychological, spiritual, ethical and political arguments.

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From Book 1: HUME'S PROBLEMS WITH INDUCTION

1. Hume's "problem of induction"

In the present essay, I would like to make a number of comments regarding Hume's so-called problem of induction, or rather emphasize his many problems with induction. I am mindful of Hume in all my writings. In at least two places, I devote some attention to Hume's particular viewpoints¹. If elsewhere I often do not mention him, or I just mention him in passing², as one proponent of this or that doctrine under discussion, it is because my emphasis is on proposing coherent theories rather than lingering on incoherent ones.

David Hume is undoubtedly a challenging and influential philosopher. In his works, he repeatedly attacks many common concepts, such as the validity of induction (notably, generalization); the existence or knowability of natural necessity or law, causal connection or causation; and the existence or knowability of a self or person; that will is free of determinism and indeterminism; that an "ought" may be derived from an "is" or is a special kind of "is".

These are of course essentially various facets of one and the same assault against common sense, against human reason. I will briefly now reply to each of these skeptical objections. The central or root question here is, I believe, that of the validity of induction. For the other problems are solvable mostly by inductive means. So that if induction is invalid, it is indeed difficult to see how the various other basic ideas of reason could be justified.

With regard to Hume's problem with **generalization**: Hume³ doubted the validity of generalization on the ground that *having in the past observed certain regularities is no guarantee that in the future*

¹ Namely, in *Phenomenology*, chapter II (section 5), and in *Ruminations*, part I, chapter 8 (sections 4-7).

² See mentions in: *Future Logic*, chapters 65 and 67. *Phenomenology*, ch. I, V, VI and VII. *Judaic Logic*, ch. 2. *Buddhist Illogic*, ch. 7. *The Logic of Causation*, ch. 3, 10, 16 and app. 1. *Volition and Allied Causal Concepts*, ch. 2. *Ruminations*, part I, ch. 9, and part II, ch. 1, 6, 7. *Meditations*, ch. 32.

³ In his *Treatise of Human Nature* (1739-40), and subsequent works. The *Treatise* is posted in full at <http://socserv2.socsci.mcmaster.ca/~econ/ugcm/3ll3/hume/treatise1.html>.

such regularities will hold. To appeal to a principle of Uniformity of Nature would, according to him, be a circular argument, since such a principle could only itself be known by generalization.

In Hume's view, a generalization is just a mental knee-jerk reaction by humans (and even animals, though they do it non-verbally), an expression of the expectation formed by repeated experiences of a similar kind, a sort of psychological instinct or habit rather than an epistemologically justifiable scientific methodology.

This might all seem credible, were we not to notice some glaring errors in Hume's understanding of generalization, and more broadly of induction⁴.

*Hume's error was to concentrate on the positive aspect of generalization and totally ignore the negative aspect of particularization.*⁵ Since he unconsciously equated inductive reasoning solely with generalization from past regularity, he naturally viewed the fact that some breach of regularity might indeed (as often happens) occur in the future as evidence that generalization *as such* is flawed. But this is just a misapprehension of the nature of induction on his part.

He should have known better, since Francis Bacon had (some 80 years before, in his *Novum Organon*)⁶, already clarified the all-importance of the "negative instance" as a check and balance against excessive generalization and in other forms of induction. Because Hume failed to grasp this crucial insight, we can say that his understanding of induction was fragmentary and inadequate.

All generalization is conditional; we may infer a generality from similar particulars, *provided we have sought for and not found evidence to the contrary.* To generalize to "All X are Y" we need to know two things, not just one: (a) that some X are Y, and (b) that no X to date seem not to be Y. Though the latter condition is usually left tacit, it is absolutely essential⁷.

If we did find such contrary evidence early, before we generalized, we would simply not generalize. If we find it later, after we generalized, we are then logically required to particularize. Synthetic generalities are not meant as static absolutes, but as *the best available assumptions in the given context of knowledge.* Generalization is a dynamic process, closely allied with particularization; it is not a once and for all time process.

The same logic applies to other forms of induction⁸, notably **adduction**. The latter refers to a broader concept of induction, from any evidence to any derived hypothesis (which may contain

⁴ I here refer the reader to *Future Logic*, Part VI, for a fuller understanding of the issues. Read at least chapters 50 and 55.

⁵ This error has, I have read, already been spotted by Karl Popper.

⁶ England, 1561-1626. The full text (1620) is posted on the Internet at <http://etext.library.adelaide.edu.au/b/bacon/francis/organon/complete.html>.

⁷ Still today, many writers, philosophers and teachers fail to realize and mention this essential condition when they define or discuss generalization. It should nevermore be left tacit, to avoid the perpetuation of Hume's error.

⁸ Indeed, in the very act of concept formation, we do not merely *include* certain cases into it, but also (if only tacitly) *exclude* other cases from it. There is always both a positive and a negative aspect to thought, though the latter is often less manifest. Integration is always coupled with differentiation.

different terms than the evidence). The hypothesis is not merely confirmed by the evidence it explains, *but equally by the absence of contrary evidence and by the absence of better alternative hypotheses.*

Note this well: the data that confirm a hypothesis do *not* suffice to make us believe it. The simple proof of this is that when a hypothesis is rejected for some reason, the data that in the past confirmed it *continue* to logically confirm it, yet the hypothesis is thrown out in spite of that. There are essential additional conditions, which make our inductive conclusion unassailable thus far, namely (to repeat) that we have to date no data that belies it and no more fitting hypothesis.⁹

Inductive truth is always frankly contextual. It is absurd to attack induction as “unreliable” because it does not yield truths as certain and foolproof as deduction is reputed to do. To argue thus is to claim that one has some standard of judgment other than (or over and above) the only one human beings can possibly have, which is induction.

When inductive logic tells us: “in the given context of knowledge, hypothesis X is your best bet, compared to hypotheses Y, Z, etc.” – it is not leaving the matter open to an additional, more skeptical posture. For what is such **skepticism**, but itself just a claim to a logical insight and a material hypothesis?

If one examines skepticism towards induction, one sees it to be *nothing more than an attempted generalization from past occurrences of error (in other domains), one that pays no heed to past and present non-occurrences of error (in the domain under consideration).* That is, it is itself a theory, open to inductive evaluation like any other.

Inductive logic has *already* taken that skeptical hypothesis into consideration and pronounced it inferior, because it does not duly take into consideration the specific current evidence in favor of X rather than all other alternatives.

Even if a scientific theory is not absolutely sure forevermore, we must stick by it if it seems at this time to be the closest to truth. The skeptic cannot come along and object that “closest is not close enough” – for that would mean he considers (nonsensically) that he has a theory that is closer than closest!

Hume foolishly ignored all this reasoning. He focused only on the positive aspect, and rightly complained that this could not possibly be regarded as logically final and binding! Under the circumstances, it is no wonder that he could see no “proof” of generalizing or adductive reasoning. If we wrongly define and fail to understand some process, it is bound to seem flawed to us.

When Hume discovered the unreliability of induction as he conceived it, he should have looked for a flaw in *his own view* of induction, and modified it, rather than consider induction as invalid. *That*

⁹ The logical calculus involved is thus not a simple dependence on “confirmation”, but a much more complex and global set of considerations, including “non-rejection” and “competitiveness”. See in this regard my detailed essay “Principles of Adduction” in *Phenomenology* (chapter VII, section 1).

would have been correct inductive behavior on his part. When one's theory leads to absurd consequences, our first reaction should be to modify our particular theory, not theorizing as such. Instead of doubting his own thinking, Hume attacked human knowledge in general, whining that it cannot be "proved".¹⁰

But of course, logic – by that I mean deductive logic this time – cannot tolerate such self-contradiction. If someone claims the human means to knowledge, which includes induction as well as deduction, is flawed, then that person must be asked how come he arrived at this supposedly flawless proposition. One cannot reasonably have one's cake and eat it too.

The argument against generalization is itself a generalization, and so self-contradictory. We cannot say: since *some* generalizations are evidently erroneous, therefore *all* generalization is invalid (i.e. we cannot be sure of the validity of any generalization, which makes it as good as invalid) – because, of course, this argument is itself a generalization, and therefore is invalidated by itself! What we can say for sure is that a generalization (like that one) that leads to a contradiction is deductively invalid.

When one discovers a contradiction in one's thinking, it is not logic as such that is put in doubt but only one's current thinking. It is silly to cling to a particular thought and reject logic instead. Hume had greater faith in his particular logical notions (which were not, it turns out very logical) than he had in logic as such. The true scientist remains humble and open to correction.

Our ideas and theories have to be, as Karl Popper put it, *not only verifiable but also falsifiable*, to be credible and trustworthy. Albert Einstein likewise remarked¹¹:

“The belief in an external world independent of the perceiving subject is the basis of all natural science. Since, however, sense perception only gives information of this external world or of “physical reality” indirectly, we can only grasp the latter by speculative means. It follows from this that our notions of physical reality can never be final. We must always be ready to change these notions – that is to say, the axiomatic basis of physics – in order to do justice to perceived facts in the most perfect way logically.”

If one examines Hume's actual discourse in his books, one sees that even as he explicitly denies the reliability of induction he is implicitly using induction to the best of his ability. That is, he appeals to facts and logic, he conceptualizes, generalizes and proposes theories, he compares his favored theories to other possible interpretations or explanations, he gives reasons (observations and arguments) for preferring his theories, and so forth. All that is – induction. Thus, the very methodology he rejects is the one he uses (albeit imperfectly) – and that is bound to be the case, for human beings have no other possible methodology.

¹⁰ Hume's egotistical thinking in this and many other matters was very similar to that of certain philosophers much earlier in India (notably the Buddhist Nagarjuna). Not to mention Greek sophistries.

¹¹ I cannot say just where – having gleaned this quotation out of context somewhere in the Internet.

To say this would seem to suggest that self-contradiction is feasible. Not so, if one considers how the two aspects, viz. the theory and the practice, may be at odds in the same person. When Hume says that induction is unreliable, he of course means that induction *as he sees it* is unreliable; but he does not realize that *he sees it incorrectly*¹², i.e. that a *quid pro quo* is involved. Indeed, he does not seemingly realize that the way he views it *affects* the way he gets his views of it, i.e. that he misleads himself too.

While he consciously denies the validity of induction, he unconsciously and subconsciously naturally continues to use it. However, because he has (prejudicially) chosen to deny induction in principle, he cannot study it as openly, impartially and thoroughly as he would otherwise have done, and he is led into error both in his understanding of it and in his actual use of it. Bad theory generates bad practice. And the converse is of course also true, wrong practices promote wrong theories. He is trapped in a vicious circle, which requires a special effort of objectivity to shake off.

We must always keep in mind that what seems impossible or necessary to a philosopher (or anyone else, for that matter) depends on how he views things more broadly. Every philosopher functions within the framework of some basic beliefs and choices. These are not an eternal prison, but they take time and effort to overcome. Sooner or later, a philosopher gets locked-in by his past commitments, unless he takes great pains to remain open and inquisitive.

2. The principle of induction

Concerning the uniformity principle, which Hume denies, it is admittedly an idea difficult to uphold, in the sense that we cannot readily define uniformity or make a generality of it. We might speak of repetition, of two or more particular things seeming the same to us; but we are well aware that such regularity does not go on ad infinitum. On the contrary, we well know that sooner or later, something is bound to be different from the preceding things, since the world facing us is one of multiplicity.

Therefore, this “principle” may only be regarded as a heuristic idea, a rule of thumb, a broad but vague practical guideline to reasoning. It makes no specific claims in any given case. It just reminds us that there are (or seem to us to be) ‘similarities’ in this world of matter, mind and spirit. It is not intended to deny that there are also (apparent) ‘dissimilarities’. It is obviously not a claim that all is one and the same, a denial of multiplicity and diversity (in the world of appearances, at least¹³). To speak of uniformity in Nature is not to imply uniformity of Nature.

¹² Or at least, incompletely – being for instance aware of the positive side (e.g. apparent constancy), but unaware of the negative side (e.g. testing for inconstancy).

¹³ I.e. such recognition of pluralism does not at the outset exclude monism. The former may be true at the superficial phenomenological level, while the latter reigns at the metaphysical level of ultimate reality.

We might also ask – can there be a world *without any* ‘uniformities’? A world of universal difference, with no two things the same in any respect whatever is unthinkable. Why? Because to so characterize the world would itself be an appeal to uniformity. A uniformly non-uniform world is a contradiction in terms. Therefore, we must admit *some* uniformity to exist in the world. The world need not be uniform throughout, for the principle of uniformity to apply. It suffices that some uniformity occurs.

Given this degree of uniformity, however small, we logically can and must talk about generalization and particularization. There happens to be some ‘uniformities’; therefore, we have to take them into consideration in our construction of knowledge. The principle of uniformity is thus not a wacky notion, as Hume seems to imply. It is just a first attempt by philosophers to explain induction; a first try, but certainly not the last. After that comes detailed formal treatment of the topic. This proceeds with reference to specifics, symbolized by X’s and Y’s, and to strict logic.

The uniformity principle is not a generalization of generalization; it is not a statement guilty of circularity, as some critics contend. So what is it? Simply this: ***when we come upon some uniformity in our experience or thought, we may readily assume that uniformity to continue onward until and unless we find some evidence or reason that sets a limit to it.*** Why? Because in such case the assumption of uniformity already has a basis, whereas the contrary assumption of difference has not or not yet been found to have any. The generalization has some justification; whereas the particularization has none at all, it is an arbitrary assertion.

It cannot be argued that we may equally assume the contrary assumption (i.e. the proposed particularization) on the basis that in past events of induction other contrary assumptions have turned out to be true (i.e. for which experiences or reasons have indeed been adduced) – for the simple reason that such a generalization from diverse past inductions is formally excluded by the fact that we know of many cases that have not been found worthy of particularization to date.

That is to say, if we have looked for something and not found it, it seems more reasonable to assume that it does not exist than to assume that it does nevertheless exist. Admittedly, in many cases, the facts later belie such assumption of continuity; but these cases are relatively few in comparison. The probability is on the side of caution.

In any event, such caution is not inflexible, since we do say “until and unless” some evidence or argument to the contrary is adduced. This cautious phrase “until and unless” is of course essential to understanding induction. It means: until *if ever* – i.e. it does not imply that the contrary will necessarily occur, and it does not exclude that it may well eventually occur. It is an expression of open-mindedness, of wholesome receptiveness in the face of reality, of ever readiness to dynamically adapt one’s belief to facts.

In this way, our beliefs may at all times be said to be as close to the facts as we can get them. If we follow such sober inductive logic, devoid of irrational acts, we can be confident to have the best available conclusions in the present context of knowledge. We generalize when the facts allow it,

and particularize when the facts necessitate it. We do not particularize out of context, or generalize against the evidence or when this would give rise to contradictions.

Hume doubted the validity of generalization because he thought that we adopt a general proposition like All X are Y, *only* on the basis of the corresponding particular Some X are Y. But if the latter was *sufficient* to (inductively) establish the former, then when we were faced with a contingency like Some X are Y and some X are not Y, we would be allowed to generalize both the positive and negative particulars, and we would find ourselves with a contradiction¹⁴ in our knowledge, viz. with both All X are Y and No X are Y.

But since contradiction is error, according to the 2nd law of thought, it follows that a particular is not by itself enough to confirm a generality. To do so, we need also to first adduce that the opposite particular is not currently justified. Note well what we have shown here: this criterion for generalization follows from the law of non-contradiction. Hume and his skeptical successors did not take this additional criterion into account. They noticed the aspect of ‘confirmation’, but ignored that of ‘non-rejection’.

The uniformity principle ought to be viewed as an application of a much larger and important principle, which we may simply call *the principle of induction* (in opposition to the so-called problem of induction). This all-important principle could be formulated as follows: *given any appearance, we may take it to be real, until and unless it is found to be illusory*.¹⁵

This is the fundamental principle of inductive logic, from which all others derive both their form and their content. And indeed, this is the way all human beings function in practice (with the rare exception of some people, like Hume, who want to seem cleverer than their peers). It is, together with Aristotle’s three laws of thought, the supreme principle of methodology, for both ordinary and scientific thought, whatever the domain under investigation¹⁶.

Indeed, we could construe this principle of induction as *the fourth law of thought*. Just as the three laws proposed by Aristotle are really three facets of one and the same law, so also this fourth law should be viewed as implicit in the other three. Induction being the most pragmatic aspect of logic, this principle is the most practical of the foundations of rational discourse.

¹⁴ Or more precisely a contrariety.

¹⁵ I have formulated and stressed this principle since I started writing logic, although I here name it “principle of induction” for the first time. See, for instances: *Future Logic*, chapter 2, etc.; *Phenomenology*, chapter 1, etc.; *Ruminations*, chapters 1 and 2.

¹⁶ I stress that here, to forestall any attempt to split ordinary and scientific thought apart. We should always stress their continuity. The difference between them is (theoretically, at least) only one of rigor, i.e. of effort to ensure maximal adherence to logic and fact. This only means, at most, that more ordinary people fail to look carefully and think straight than do most scientists – but both groups are human. Another important thing to stress is that this method is the same for knowledge of matter or mind, of earthly issues or metaphysical ones, and so forth. The principle is the same, whatever the content.

The principle of induction is a phenomenological truth, because it does not presume at the outset that the givens of appearance are real or illusory, material or mental, full or empty, or what have you. It is a perfectly neutral principle, without prejudice as to the eventual content of experience and rational knowledge. It is not a particular worldview, not an *a priori* assumption of content for knowledge.

However, in a second phase, upon reflection, the same principle favors the option of reality over that of illusion as a working hypothesis. This inbuilt bias is not only useful, but moreover (and that is very important for skeptics to realize) logically rock solid, as the following reasoning clearly shows:

This principle is self-evident, because its denial is self-contradictory. If someone says that *all appearance is illusory, i.e. not real*, which means that all our alleged knowledge is false, and not true, that person is laying claim to some knowledge of reality (viz. the knowledge that all is unreal, unknowable) – and thus contradicting himself. It follows that we can only be *consistent* by admitting that we are indeed capable of knowing some things (which does not mean everything).

It follows that the initial logical neutrality of appearance must be reinterpreted as in all cases an initial reality *that may be demoted* to the status of illusion if (and only if) specific reasons justify it. Reality is the default characterization, which is sometimes found illusory. Knowledge is essentially realistic, though in exceptional cases it is found to be unrealistic. Such occasional discoveries of error are also knowledge, note well; they are not over and above it.

If we did not adopt this position, that appearance is biased towards reality rather than illusion, we would be stuck in an inextricable agnosticism. Everything would be “*maybe real, maybe illusory*” without a way out. But such a problematic posture is itself a claim of knowledge, just like the claim that all is illusory, and so self-inconsistent too. It follows that the interpretation of appearance as reality until and unless otherwise proved is *the only* plausible alternative.¹⁷

If appearance were not, *ab initio* at least, admitted as reality rather than as illusion or as problematic, we would be denying it or putting it in doubt without cause – and yet we would be granting this causeless denial or doubt the status of a primary truth that does not need to be justified. This would be an arbitrary and self-contradictory posture – an imposture posing as logical insight. All discourse *must* begin with some granted truth – and in that case, the most credible and consistent truth is the assumption of appearance as reality unless or until otherwise proved.

We may well later, *ad terminatio* (in the last analysis), conclude that our assumption that this appearance was real was erroneous, and reclassify it as illusory. This happens occasionally, when

¹⁷ Worth also stressing here is the importance of working hypotheses as engines of active knowledge development. A skeptical or agnostic posture is essentially static and passive; taken seriously, it arrests all further development. Scientists repeatedly report the crucial role played by their working hypothesis, how it helped them to search for new data that would either confirm or refute it, how it told them what to look for and where and how to look (see for instance, Gould, p. 172). This is true not only of grand scientific theories, but of ordinary everyday concepts.

we come across conflicts between appearances (or our interpretations of them). In such cases, we have to review in detail the basis for each of the conflicting theses and then decide which of them is the most credible (in accord with numerous principles of adduction).

It should be stressed that this stage of reconciliation between conflicting appearances is not a consequence of adopting reality as the default value of appearances. It would occur even if we insisted on neutral appearances and refused all working hypotheses. Conflicts would still appear and we would still have to solve the problem they pose. In any case, never forget, the assumption of reality rather than illusion only occurs when and for so long as no contradiction results. Otherwise, contradictions would arise very frequently.

Note well that I do not understand appearance in quite the same way Edmund Husserl does, as something *ab initio* and intrinsically mental; such a view is closer to Hume or even Berkeley than to me.

The ground floor of Husserl's phenomenology and mine differ in the primacy accorded to the concepts of consciousness and of the subject of consciousness. My own approach tries to be maximally neutral, in that appearances are initially taken as just 'what appears', without immediately judging them as 'contents of someone's consciousness'. Whereas, in Husserl's approach, the wider context of appearance is from the start considered as part and parcel of the appearance.

For me, some content comes first, and *only thereafter* do we, by a deduction or by an inductive inference, or perhaps more precisely by an intuition (an additional, secondary, reflexive act of consciousness), become aware of the context of consciousness and conscious subject. At this later stage, we go back and label the appearance as a "content of" consciousness, i.e. as something whose apparition (though not whose existence) is made possible by an act of consciousness by some subject. Content is chronologically primary, the context is secondary.

Whereas in Husserl's philosophy, the fact of consciousness and its subject are present from the start, as soon as the appearance appears. Husserl's mistake, in my view, is to confuse logical order and chronological order, or ontological and epistemological. Of course, logically and ontologically, appearance implies consciousness and someone being conscious; but chronologically and epistemologically, they occur in succession.

As a result of this difference, his approach has a more subjectivist flavor than mine, and mine has a more objectivist flavor than his. Note, however, that in his later work Husserl tried more and more to shift from implied subjectivism to explicit objectivism.

We have seen the logic of induction in the special case of generalization. Given the positive particular 'Some X are Y' (appearance), we may generalize to the corresponding generality 'All X are Y' (reality), *provided* we have no evidence that 'Some X are not Y' (no conflicting appearance). Without this caveat, many contradictions would arise (by generalizing contingencies into contrary generalities); that proves the validity of the caveat. If (as sometimes occurs) conflicting evidence

is eventually found (i.e. it happens that Some X are not Y), then what was previously classed as real (viz. All X are Y) becomes classed as illusory (this is called particularization).

Induction is a flexible response to changing data, an ongoing effort of intelligent adaptation to apparent facts. Few logicians and philosophers realize, or take into consideration, the fact that one of the main disciplines of inductive logic is **harmonization**. They discuss observation and experiment, generalization and adduction, and deduction, with varying insight and skill, but the logic of resolving contradictions occasionally arrived at by those other inductive means is virtually unknown to them, or at least very little discussed or studied. This ignorance of, or blindness to, a crucial component of induction has led to many foolish theories¹⁸.

Notice well, to repeat, the *conditional form* of the principle of induction: it grants credibility to initial appearances “until and unless” contrary appearances arise, which belie such immediate assumption. Thus, in the case of the narrower uniformity principle, the initial appearance is the known few cases of similarity (or confirmation) and the fact of not having to date found cases of dissimilarity (or conflicting data); this allows generalization (or more broadly, theory adoption) until if ever we have reason or evidence to reverse our judgment and particularize (or reject, or at least modify, the theory).

The principle of induction may likewise be used to validate our reliance on intuition and sensory and inner perception, as well as on conception. It may also be applied to causality, if we loosely formulate it as: order may be assumed to exist everywhere, until and unless disorder appears obvious. However, the latter principle is not really necessary to explain causality, because we can better do that by means of regularity, i.e. with reference to the uniformity principle, i.e. to generalization and adduction.

In any case, the principle of induction is clearly a *phenomenological* principle, before it becomes an epistemological or ontological one. It is a logical procedure applicable to *appearance as such*, free of or prior to any pretensions to knowledge of reality devoid of all illusion. The claims it makes are as minimal as could be; they are purely procedural. It is for this reason as universal and indubitable as any principle can ever be.

Moreover, the principle of induction (and likewise its corollary the uniformity principle) applies equally to the material, mental and spiritual realms. It is a valid method of dealing with data, independently of the sort of data involved, i.e. irrespective of the ‘substance’ of the data. Many people associate induction exclusively with the physical sciences, but this is misconceived. Inductive logic sets standards of judgment applicable in all fields – including in psychology and in moral and spiritual concerns.

¹⁸ For example, Hempel’s so-called paradox of confirmation.

From Book 2: A SHORT CRITIQUE OF KANT'S UNREASON

2. The analytic-synthetic dichotomy

Kant's dichotomy between the world apparent to us and some unknowable more really real world beyond is based on and buttressed by his **peculiar theory of logic**. I refer especially to his analytic-synthetic dichotomy.

According to his view, a proposition like "all bachelors are unmarried men" is analytic, meaning that it can be known to be true merely by examining the terms or concepts involved¹⁹. Thus, "analytic" refers to purely rational knowledge, which does not need to appeal to experience. This implies that all analytic propositions are "a priori". Moreover, all of them are (logically) "necessary", since their truth is not open to debate. To deny them would be to commit an antinomy²⁰.

Thus, a proposition like "all bachelors are unmarried men" is at once *analytic, a priori and necessary* (and thus universal, certain and fixed). By way of contrast, a proposition like "all bachelors are happy" is *synthetic, a posteriori and contingent* (and thus particular, uncertain and variable)—because we cannot determine just by rational means alone whether it is true or false, but must look into the matter empirically without any certainty of success²¹.

(The above used examples, on the subject of bachelors, are those most commonly used nowadays by commentators. Kant's actual favorite examples were "all bodies are extended" and "all bodies are heavy", respectively. These are for the moment ignored here, because they involve complications irrelevant to the issues at hand. They will be given some consideration further on.)

Now, this logic theory of Kant's is simply balderdash. It is a very superficial and illogical construction. As we shall show, analytic propositions are misnamed; they have nothing to do with analysis – and they are neither purely a priori nor logically necessary.

¹⁹ Kant would also regard the negative sentence "bachelors are not married men" as analytic, since it is deducible (by obversion) from "bachelors are unmarried men".

²⁰ This sounds impressive; but upon reflection we realize analytic statements are mere tautologies, they just repeat the same thing in other words. So they do not contain much information, if any (at least this is the conclusion commentators often draw, but see further on). For this reason, the analytic-synthetic dichotomy bears some analogy to the transcendental-immanent dichotomy. Kant's analytic statements seem to exist in some ideal plane divorced from synthetic ones, just as transcendental reality is set apart from everyday immanent appearances.

²¹ Kant speculated about the possibility of propositions that would be both *synthetic and necessary*. Hume had previously denied such possibility, e.g. in his rejection of necessary connection in causal relations. In my view, this simply refers to what is properly termed 'natural law' or *natural necessity* (as against logical necessity). As I show in my work *Future Logic*, such propositions can indeed be validated by induction; natural necessity is knowable by generalization from actuality.

Meaning. When we say that a bachelor is an unmarried man, we are not analyzing some pre-ordained truth, nor are we engaged in a wholly arbitrary declaration (as later commentators have countered). In this precise instance, we are voluntarily introducing, for the purpose of economy, a new word “bachelor” to use in place of the phrase “unmarried man” used until now. This is on the surface an equation of words, a “definition” of the word bachelor by the words unmarried man, a mere tautology.

But at a deeper level, what are we doing? We are deliberately *transferring the meaning of the words* “unmarried man” to the newly coined word “bachelor”. This implicit ‘meaning’ is not yet-another verbal definition, but ultimately refers us to something outside the cycle of words – in experience (and abstractions from it). The meaning of a word is what we *intend* by the word, i.e. what experience (and more broadly abstraction) the word has been invented by us to stand for in our verbal thoughts. The intention of a word is what it is designed by us *to point our attention to*.

The word serves as a mnemonic or reminder of something that is ultimately wordless. Thus, when we say: “bachelors are unmarried men”, we are not merely juggling with meaningless symbols. The words “unmarried men” must first jointly mean something to us – they must refer us to some meaning *beyond words*. The definition of “bachelors” as “unmarried men” is then simply a conveying, a passing over of meaning, i.e. a redirection of intention. The defining phrase draws our attention to certain objects or contents of consciousness; and then, the defined word is attributed to the exact same objects or contents of consciousness.

When we look up a word we do not know in a dictionary, we are not merely looking for words to equate to it. We are hoping the dictionary definition will point our attention (approximately, if not precisely) in the direction of the meaning of the word. The words in the definition are means to that end; they are not the end itself. They are mere conduits.

The process involved here is very similar to what occurs in translation from one language to another. For instance, the proposition “un célibataire \equiv a bachelor” signifies equivalence between the word in French and that in English. Such equation is not merely verbal, but semantic; i.e. not only are the words equated, but their meanings. Given the meanings, such equation is therefore a statement of objective fact. One cannot equate just any word in one language to just any in the other, and often such equations must be carefully qualified because identical words are unavailable.

It follows that even though our choice of the word “bachelor” as a substitute for “unmarried man” is conventional, and more or less arbitrary, though we often prefer to refer to etymology in coining new words²², the proposition still ultimately relies on experienced data for its meaningfulness. In our example, the meaning depends on our existing in a society where men and women can engage in a contractual agreement called marriage, with certain rights and obligations on each side. An

²² Note well: what is conventional here is simply what linguistic *sounds* (and their corresponding written letters) we select for the job at hand. It is a very superficial freedom of choice.

unmarried man is then a man who has not entered into such an agreement. And a “bachelor” is then declared short for “unmarried man”.

The meaning of the word bachelor, then, is certainly *not the words* unmarried man, as some logicians mistakenly think. Rather, the meaning of both the word bachelor and the phrase unmarried man is *the apparent fact(s)* that these words all point us to. They are interchangeable because we have voluntarily assigned them a common (wholly real or somewhat imagined) factual meaning. We do not always need words to understand meaning; but words do facilitate more complex thought processes and communication, so such transfers of meaning are usually useful. Although they increase the number of words in our language, the use of shorter verbal formulae permits us longer thoughts.

Clearly, all this implies specific empirical content, and usually also some abstract content (which is derived from other experiences, but has received some rational processing). It is not something as divorced from experience as Kant makes it seem. If I tell you “all shworgers are lkitzerlo abcumskil” – you would say “whaaaaaat?” This would be an example of a definition independent of experience, i.e. devoid of any meaning (other than the meanings of the sentence structure and the words “all” and “are”, which I have deliberately kept to make my point²³) “All bachelors are unmarried men” is obviously not such a fanciful definition.

A small digression on *polysemy*, i.e. multiplicity of meaning, is in order here.

Two (or more) different words are said to be **synonyms** if they have the same meaning. The words differ in sound and/or spelling, yet they mean the same thing. However, we must distinguish between *exact* synonyms and *approximate* synonyms, for though synonymy theoretically refers to identical meanings, in practice it is applicable to words with similar meanings. For it is clear that different words do not have either the same or different meanings – but may variously *overlap* in meaning, i.e. their intentions may converge *to various degrees*. Some pairs may be exactly synonymous; but often, they are only more or less synonymous. Similarly, by the way, *antonyms* (words with opposite meanings) may have strictly incompatible meanings, or (within reasonable limits) more or less conflicting meanings.

Inversely, a single word – that is, one in sound and/or in spelling – may have two (or more) meanings. Note that the words may sound the same and be spelt differently, or they may sound different and be spelt the same, or they may both sound and look identical. In any such case, though the word concerned is materially one, it is effectively equivalent to two words, since it has more than one meaning or intention. These two words – two in meaning

²³ If I had said: “shbam lkitzerlo abcumskil shworgers lik” you would have been even more confused. Logicians who lay claim to artificial languages, or purely symbolic constructs, are stupid or dishonest, because they forget or conceal the fact that they need existing language (plain English, or whatever) to communicate what they mean by them, with themselves and with the rest of us. To ignore this “little detail” is intellectually criminal.

though not in verbal appearance – are said to be **homonyms**. Their superficial similarity is not to be taken at face value, whether it has arisen accidentally or incidentally or deliberately. Note however that the word may have *more or less divergent* meanings – i.e. its various interpretations may be semantically very close or very far.

Thus, both synonymy and homonymy may be said to exhibit polysemy. Sometimes, this multiple meaning is concealed in a synonymy; sometimes, in a homonymy. But in any case, some confusion may result. For this reason, it is always wise to keep in mind the difference between the external appearance of words (words as material sounds or sights) and their internal sense (their intended significance, what they are actually meant during their present use). Sounds or sights that have no meaning at all cannot properly be called words – if they symbolize nothing, they are not symbols; inversely, if they symbolize something, it does not follow that they symbolize nothing else. Language is not always cut and dried.

A few words are worth adding concerning the terms *ambiguity* and *equivocation*. These two terms can be considered equivalent – or contrasted. The term ‘ambiguous’ is reasonably unambiguous – it signifies an uncertainty of some sort, a difficulty in deciding on the correct interpretation to make or conclusion to draw. So it suggests a homonymy. The etymology of ambiguity, ‘both actions’ confirms this: [one word with] two intents. The word ‘equivocation’ is more ambiguous. It is often in practice used as a synonym of ambiguity. This equation is suggested by the etymology of equivocation, which is ‘same speech’ – i.e. same word [though different meaning]. But the terms can also be distinguished, if we understand the equivocation as signifying: same [meaning, but different] speech. In this sense, equivocation is equivalent to synonymy.

It should be also be said that ambiguity and equivocation often occur on purpose, in the way of a deliberate lie, an attempt to fudge words or meanings so as to mislead oneself or someone else. But of course, they need not have such implications – they often occur in our discourse as mere expressions of inattention, ignorance or stupidity. In any case, it is clear that such confusions of words and meanings can cause havoc in reasoning. For instance, a syllogism whose middle term is ambiguous can lead to a false conclusion. Or likewise, if the minor or major term has a different sense in the conclusion than it has in the premises, we have an illicit inference. This is commonly called the fallacy of equivocation.

It should be added in passing, without here getting into a full theory of definition, that the example of “bachelors” (commonly used in the present context) represents only one type of defining act. In this case, we start off with a defining description, viz. “unmarried men”, and then simply assign a name to the thing concerned (I call this deductive definition). However, in many if not most cases, we proceed in the opposite direction, *more inductively*.

We start with a vague notion that there is something there that we ought to name and study. We give the vague thing a name. This name is effectively all that “defines” it for us for now; it serves as a handle on the phenomenon, or as the memory box we will collect and store information about it in. Then we study the matter, empirically and rationally, describing it in various ways.

Gradually, we select one aspect of the phenomenon under study as its definition. This may be a categorical or conditional predicate, or conjunction of predicates, of any sort. For examples: (all and only) X are Y, or Xs do Y under conditions Z. We may later decide that choice was inappropriate for some reason (for example, the proposed definition may turn out not to be universal or unconditional, or not exclusive), and choose another part of the thing's description as its definition.²⁴

If we examine this process more closely, we find it to function essentially *by analogy*. The importance of analogy in human knowledge cannot be overstated and yet is rarely mentioned. When we classify two or more things under a common concept or name, or otherwise relate them theoretically, we imply them to be analogous in some respect(s). New ideas and theories are formulated by successive analogies; they cannot be invented *ex nihilo*, without remodeling some preexisting experiential (and usually partly rational) material. In the case of inductive definition, a vague resemblance between certain phenomena serves as the motive force of our research.

With this alternative act of "definition" in mind, we can see the inadequacy of Kant's theory²⁵. He just focused on just one process of definition, which superficially seemed "analytical", and ignored the more significant process just described, which is clearly inductive, i.e. manifestly "synthetic"²⁶.

Truth. It follows from such analysis – and here I use the term "analysis" in a more reputable sense – that the proposition "all bachelors are unmarried men" is in fact, beneath the surface, as synthetic, a posteriori and contingent as the proposition "all bachelors are happy". To claim "all bachelors are unmarried men" *is true*, we must believe that *there exists* something we previously called unmarried men. Even though the word bachelor is arbitrarily equated to the previous words, the underlying meaning is still called for to give it meaning in turn. If (and only if) the intended object seems to exist, is it reasonable to call such a proposition true.

²⁴ For example, we had a word for "men" (i.e. human beings) long before we were able to define them. Aristotle proposed "rational animals" late in human history, and modern biology has proposed its own definition(s) long after. People were till then, and also today, still quite able to use and understand the word "mankind", on the basis of perceived similarities despite perceived differences, even though they did not have a verbal definition for it, or even think to define it.

²⁵ And of certain related theories by some of his successors, notably the "logical positivists" in the 20th century. It is interesting to note the reflection of a prominent scientist in this regard: "extreme precision of definition is often not worthwhile, and... mostly it is not possible" (Feynman, p. 20). The reason it is "often not worthwhile" is because fixed definition would freeze our knowledge in a premature position: knowledge must be given the space and time to develop.

²⁶ It should be pointed out that when we have a vague, not yet defined word of this sort, it cannot be said that we are referring to its objects instead. This is said to avoid confusion with the later distinction (after Frege) between sense and reference. In actual practice, **the inductively developed word is vague both in its reference (we do not yet know all its objects) and in its sense (we are not yet sure which part of its eventual description will become the defining part)**. All we have to get hold of is a vague notion of some kind of resemblance between certain things so far encountered. It is important to keep this remark in mind.

At this stage, we have to ask: what of imaginary terms? For instance, in what sense is “unicorns are horses with a horn on their forehead” empirically based? Here, relation between the defined term and the defining term is the same as before, but the latter term refers to something imaginary. Nevertheless, such imagination is just a reshuffling of previous experiences. We have seen horses and have seen horns, and we put their memories together in a certain way in our minds eye (similarly with non-visual memories, of course). Had we not had physical or mental experiences (or abstractions from them) to ultimately refer to, we would have been hard put to give any meaning to the word unicorn. Our minds would remain blank with nowhere to go.

The word is thus meaningful to us, even though we do not claim it to be truthful, i.e. we do not claim it to refer to actual physical unicorns, note well. Thus, we can say that the definition of unicorns is superficially ‘true’ with regard to its equation of two sets of words, since it is entirely up to us to invent what word we choose as equivalent to the phrase horses with a horn. But the proposition is decidedly materially *false* as a whole, since horned horses do not (to our knowledge so far, at least) exist outside our imagination. If one day such an animal is found in nature, or produced artificially, the proposition might then become true. Therefore, here again, we have a clearly synthetic, a posteriori and contingent proposition.

The word ‘unicorn’ refers to a relatively concrete imaginary phenomenon. There are of course more abstract imaginations. The word ‘bachelor’ would be an abstract imagination in a society where all men were in fact married. Nevertheless, when we examine more closely the terms ‘men’ and ‘married’, we still find some traces of visual and other sensory phenomena²⁷. These traces come to mind and give some concrete meaning to the abstraction. The same can be said of an abstract term like ‘noumenon’; it is not entirely devoid of empirical content²⁸.

It should be added that the empirical traces underlying abstract concepts may be intuitive (in my sense of the term - i.e. non-phenomenal), as well as or in addition to perceptual (i.e. phenomenal, in a mental or physical sense). For example, the concept of ‘field of force’ is essentially a construct that refers to experienced physical events like the motions of certain bodies in relation to each other, and we may use pictures with arrows to visually symbolize it. But it cannot be fully *understood* without referring to our own inner experience of volitional ‘force’ (our will), and to our mental sense of effort and to our various bodily sensations when we push or pull things or are shoved around by things.²⁹

²⁷ For instance, marriage involves a certain public ceremony, a physical (verbal or oral) agreement, an exchange of gifts, and so on. These images & sounds come to mind to some extent whenever we evoke the concept, giving it some concrete ground. However, it does not follow that *only* such obvious memories are involved, note well.

²⁸ If we carefully examine how we actually in practice picture that concept, we find that we project some vague images labeling them as outside or above or behind or beyond ordinary reality, i.e. as ‘transcendental’. In other words, ‘noumenon’ depends on a certain amount of geometrical imagination to be intelligible.

²⁹ In some cases, our personal valuations, like liking or disliking, or desire or aversion, are used as empirical undercurrents in the understanding of more abstract concepts. For instance, the value concepts of beautiful and ugly (aesthetics), good and bad (ethics) would not be fully intelligible without such subjective notions.

All propositions relating to meaningful abstractions, be they simple or complex, physical, mental or spiritual, are therefore also synthetic, a posteriori and contingent.

A true statement is necessarily meaningful – but so is a false statement. Note this well: a false statement is still meaningful; it is precisely because it is meaningful that it can at all be characterized as false. In such cases, the various words it contains are *separately* meaningful, but their *conflation* in a certain sentence (structure) is contrary to fact. If a statement is totally meaningless, it is neither true nor false, because it is saying nothing at all to us.

For example: “today’s king of France is a monarchist” is false because there is no present king of France (since it is a republic), even though all the words involved in this sentence are meaningful and its structure is grammatically and logically adequate, and even though the predication of monarchism to the putative king makes sense in abstraction (though it is not inevitable, since a republican potential king is also conceivable). The truth involved could be expressed by transforming the categorical statement into a conditional one, saying “if France had a king today, he would most likely be a monarchist”.

Because I am writing for modern readers, I should here note in passing that the modern logician Gottlob Frege would have regarded a sentence like “today’s king of France is a monarchist” as involving an empty term, a term *with sense but without reference*, i.e. with a descriptive meaning (an intension or connotation), but without an actual object to which the meaning applies (an extension or denotation). But it is inaccurate in my view to present the case in point in that manner.

The ‘sense’ is (only) part of the description, and the ‘reference’ is also (only) part of the description. For, note well, *we cannot indicate or visualize a particular object without awareness of some of its descriptive elements*; and in either approach, we never recall, imagine or point to more than part of the whole. For example, whether we imagine a king in power in today’s France, or recall or see an actual such person, the mental content is almost the same.

If we are alert to what actually comes to mind when we evoke the things defined or their definition, we see that there is no essential difference between the two mental events; either way, we think of *a few cases and a few of their characters* to direct our attention where intended. Whether they are real or imaginary, there are no characters without cases and no cases without characters. The difference between sense and reference is thus at most one of emphasis; very often the mental content is identical either way.

Frege’s doctrine of sense vs. reference, one of the basic premises of modern logic, is therefore misconceived, because insufficiently attentive to our actual processes of thought. No wonder it led to the Russell paradox, which stumped Frege. The correct alternative is the understanding that meaning may be real or illusory, and must be one or the other, and that even the illusory is somewhat based on some reality (since it at all appears). With this

understanding, one sees that one cannot string words together just any way, however one likes.³⁰

As regards ‘purely formal’ abstracts, like the symbols X or Y used in logic or in mathematics for variables, although they are the nearest conceivable thing we know to analytic, a priori and necessary constructs, it is clear that *even they* depend on some experience, since if we could not instantiate them with some example(s), they would be quite meaningless to us. Logic deals with assertoric statements, or at the very least with wordless intentions. If nothing is explicitly said or implicitly intended, no judgment needs or can be made.

It is absurd the way some formal logicians or mathematicians ignore how their abstract constructs historically evolved, and what is required to make them intelligible in every new human being in every new generation. It is important for these people to keep in mind the distinction between the verbal level of thought and the underlying intentions and volitional processes it involves. It is important for them to focus on the deeper goings on (and their respective geneses), and not get dimwittedly stuck in superficial matters.³¹

For example, the form “S is P” (subject is predicate) is a convention, in the sense that the order of the symbols or words “S”, “is”, “P” is not very important, what counts is their meanings. We could (in English, and no doubt in other natural languages) place them differently, as “P is S” or “P S is” or what have you. Such changes of position are found in poetry and especially in old English (for example “blessed are the meek”). We convene “S is P” as the standard order, so as not to have to keep explaining what role each of the words is meant to have³². Such formal rules are practical, rather than theoretically significant or merely (as some moderns contend) arbitrary.

In sum, it is doubtful that *any* propositions can be characterized as analytic, a priori and necessary in the precise sense Kant intended. All human knowledge needs have and does have some empirical basis, however indirect. Otherwise, it is not true knowledge, or even false knowledge, but merely meaningless noises or doodles. It is “idealistic” in the worst sense of the term, i.e. divorced from any and all reality. Certainly, almost all knowledge is rationally processed to some extent, but *it is impossible to entirely separate the purely rational elements from the purely empirical elements* as Kant attempts.

A priori forms. Now let us consider an actual example of Kant’s: “all bodies are extended”. The reason I left it till last is because it involves more complex issues.

³⁰ See my *Future Logic*, chapter 45, on this topic.

³¹ This remark corresponds to the distinction between “surface” and “deep” grammar by Noam Chomsky. The surface may change, but the deep stuff stays the same.

³² Similarly, the order of antecedent and consequent is conventional; i.e. it could be, and in practice often is, reversed (though the underlying intention remains the same).

What is evident and sure is that we would not be able to formulate such a proposition if we had no experience of a world with bodies extended in a space, or at least of an imaginary such world. For we could well have been born in a world where we experience only one thing, viz. just light (or even, just darkness or a dimensionless point); we would still be conscious in that context, but would have no experience or imagination of extended bodies. It follows that this proposition of Kant's is in fact quite synthetic, a posteriori and contingent.

Here we touch upon Kant's theory of (imposed) "forms" of sensibility and understanding, according to which our cognitive faculties supply certain non-empirical factors of knowledge (notably space and time, and causality, among others). These components of knowledge are, according to him, *both a priori and synthetic* – that is to say, they are purely 'rational', in the sense of 'known independently of any experience', and yet *somehow* give us true information about the world, the immanent world.

In truth, we cannot rationally predict experience without any appeal to experience. Space (in at least two dimensions) and time, and likewise causality (i.e. causation, in this context) and many other abstractions, which Kant regards as categorizations imposed on experience by us, are all based on some experience and never on reason alone. Reason cannot function without some experience.

For (to repeat) we might well have existed in and experienced a unitary world without shapes and sizes or distances, without movements or other changes, and without concatenation of events (and a fortiori, without the negations of such things and events) – and then we would never have been able to understand such concepts.

Therefore, such categories are not mental formats that somehow impinge on and structure experience *before* we actually take cognizance of it. They are rather *given in experience and taken from it*. They are ways we mentally order experience *after* the fact, i.e. after we have already experienced it (and we so order it so as to more efficiently think about it and deal with it in action). They are a posteriori, not a priori.

Moreover, space, time and causation are not only applicable to sensory experiences. They are also applicable to mental experiences. It is true that apparently material bodies are visibly extended in 'space', go through visible changes in 'time' and often occur in visible conjunctions, i.e. with 'causation'. But these visual properties are not reserved to the seemingly material domain. They are also applicable in the mental domain. The images we imagine (while awake or in dreams) are also evidently extended and changing, and sometimes conjoined and sometimes not.

We should also keep in mind that the seemingly 'external' and 'internal' spaces, times and causal chains might or might not be the same or interactive. It follows that if Kant's motive in proposing these forms was to differentiate sensory experience from imaginary experience, he failed – because there is no differentia in their use in either domain. It follows too that these forms cannot be used to explain how or why 'physical' experiences are transformed into 'mental' ones – because if this were the purpose of such forms, why would they also be used on mental experiences?

Thus, “bodies are extended” cannot be proposed as a complete definition of seemingly material bodies, as against mental images, with reference to the visual experience of extension *alone*. It may suffice for mathematicians, but it does not for phenomenology-inclined philosophers. To define such bodies, we *also* have to refer to touch sensations, especially the experience we have of resistance to pressure by apparently material bodies. Mental images of such bodies do not have this tactile aspect, because (it seems to me) we are unable to concretely imagine touch.³³

Another point worth making here in rebuttal of Kant is the very fact of his communicating with us through his writing. When he says: “bodies are extended”, he is assuming these words mean something to us, and moreover the same as they mean to him. He claims this something is purely rational (i.e. “analytic”); but as indicated above such claim is logically untenable, because words must ultimately (if not directly) at least refer to an imagined experience, if they do not refer to a physical one. Words without *any* experience whatever anywhere behind them are meaningless, i.e. devoid of content.

Both he and we must refer to common experiences to understand the words, and to share them. Whether these experiences are of a physical world or a merely mental one makes no difference, provided we have a domain in common. If he was (as logically he may be taken to imply) fundamentally isolated from us, both physically and mentally, in that “bodies”, “are” and “extended” were purely rational terms, he couldn’t communicate with us on this issue. We would have no shared ground, no channel of communication.³⁴

Conclusion. The analytic/synthetic and a-priori/a-posteriori dichotomies have some traces of truth in them, in the sense that human knowledge is formed by both reason and experience. It contains both deductive and inductive components. But these components cannot readily be separated; they are too intertwined, too mutually dependent. Some partial separation is of course possible, but not a thorough separation such as Kant attempts. Nothing is purely deductive or purely inductive.

Even the laws of thought, the principle of induction, and various other generalities of formal logic, depend on experience for their meaning and for our understanding of them. Before we can say “A is A”, or find a statement to be paradoxical, or differentiate between truth and falsehood, or make a syllogistic inference, or understand what any of the preceding means, we need to have some

³³ Kant would presumably add substance (in the sense of subsistence) as an essential attribute of bodies. But I leave this complex issue out of the present discussion, since I deal with it in other contexts (notably, with reference to Buddhist doctrines).

³⁴ Of course, I could argue that Kant is a mere figment of my imagination. This is the solipsist hypothesis, which is not easy to disprove deductively, but which may reasonably be considered unconvincing given the degree and richness of imaginative power it presupposes one to have.

experiences³⁵. Our cognitive faculties cannot function without content, just as our hands cannot manipulate anything if they are empty.

The logic proposed by Kant *does not correspond to the logic of actual human discourse*; it is a mere incoherent invention of his. He may have pretentiously called it a critique of pure reason, but I would call it an impure critique devoid of reason. If he describes reason erroneously, he is logically bound to end up with absurdities like the unbridgeable gulf between things-in-themselves and things-as-they-appear. But such difficulties are not the fault of reason; they are the fault of (his own) *unreason*.

Nevertheless, Kant has been hugely influential on modern logic. The pursuit by many modern logicians of “formal systems” that are freely developed independent of experience may be regarded as an enterprise inspired by Kant.

The logical-positivists³⁶ were mostly German logicians, functioning under Kantian premises. It is not therefore surprising that most of them (with the notable exception of Kurt Gödel, who was their nemesis from the inside³⁷) adhered to a philosophy paradoxically composed of both extreme rationalism and extreme empiricism at once; that is, a philosophy upholding reason apart from experience and empiricism apart from logic, “and ne’er the twain shall meet”³⁸.

³⁵ I am always amused and amazed by logicians or mathematicians who think that they can manipulate “pure” symbols independently of all experience. They ought to stop and consider, for a start, their own experience of those symbols and of the actions they personally perform with them. They are writing on paper (or on a computer), are they not? They are hoping other people will read their stuff (and agree with them), are they not? All that is experience, too, and cannot be dismissed as irrelevant.

³⁶ Including here (for the sake of argument) members of the Vienna Circle and the likes of David Hilbert, Ernst Mach and Ludwig Wittgenstein.

³⁷ I must here give thanks to Yourgrau’s account of Gödel’s work, which (partly because of its semi-biographical format) has considerably changed my opinion of Gödel’s importance in the history of logic. My few past comments on this logician, in my *Future Logic*, might have seemed disparaging, because I assumed him to be essentially an ally of the formalist Hilbert. Yourgrau’s book has taught me that Gödel was consciously critical; i.e. that he did not merely stumble on his anti-formalist theorems, but purposely pursued them on principle. I see now that he was indeed a great logician, because he permanently defeated the modern proponents of a purely deductive logic on their own terms.

³⁸ To be more precise, they sought to adhere to logic, which they essentially understood as *deductive* logic, and they largely ignored *inductive* logic, which is precisely the tool through which reason assimilates experience. So-called formal systems are artificial concoctions, in that they arbitrarily simplify the complexity of logic (i.e. human discourse), by attempting to reduce it all to a manageable number of axioms and rules from which all theorems can be proved. This abstract and mechanical approach to logic may seem interesting to some people, but it is in fact just narrow and rigid in its mentality. It prematurely blocks research into all the manifold aspects and dimensions of our natural logical discourse, just so as to satisfy a penchant for order and finality.

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