

The Principle of Implicit Ignorance

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Abstract: The following is a foundationalist exercise based upon a single observation or postulate distinguishing one's knowledge of information versus one's knowledge of one's former unknowing of that information. This postulate is titled the "principle of implicit ignorance." Utilizing this postulate, several theorems are constructed including the equivalence to Hume's thesis regarding the absence of knowledge of a necessary connection. The postulate is then negated, demonstrating equivalence to Kant's thesis regarding the presence of synthetic *a priori* statements. The final result is a single general epistemic postulate that brokers between the two respective positions. Because both systems are the result of this general principle, rejecting the results of one system necessarily forces one into the contrary position.

I. An Observation, A Postulate

Coming to know things not known previously is a common experience. Due to the depth of this inquiry, such an examination may never be complete, but simply compelling enough to incite further inquiry. Knowledge and learning will be taken as primitive terms.

It is only after having come to know a piece of information that one can have knowledge of one's former unknowing of that piece of information. For example, it is only after one learns of pine trees that one learns of one's former unknowing of pine trees. This observation will be referred to as the principle of



implicit ignorance, or as the ignorance postulate. The proposed postulate is of this form: for every acquired piece of information, one has knowledge of one's former unknowing of a thing if and only if one has knowledge of that thing.¹

A first conclusion can be phrased in this manner: one cannot disconfirm the possibility of additional information to know. Stated differently, this is to say that one cannot know that there are not further knowable things. One could never disconfirm the presence of at least one more thing to know, because one only comes to know what it is that one does not know upon coming to know it, and it is this unknowing that one must dismiss before coming to know that thing to which that unknowing corresponds. This is contrary to the ignorance postulate as one would need to presuppose the absence of unknowing, which can only be revealed upon coming to know a new thing. To say that no further knowable information exists to be learned would be very strange semantically also, as one would be referring to the supposed non-existence of information that is not yet an object with which to be referred to. This is titled corollary one.

An illustration may clarify this first corollary. Suppose that Richard is a top researcher at an institution. Richard is assigned the task of compiling every notable scientific discovery of the past year in the next volume of the institution's magazine. Richard cannot leave until completing this task. In the morning, the manager arrives early to find a weary-eyed researcher remaining at a desk. When asked why Richard had worked through the night, the response was: "I didn't know when my job was done as I have no way to determine that the last discovery that I discovered was the last discovery *to be discovered*."

There are several red herrings to bear in mind when considering corollary one. Consider the notion that one can know when there is or is not a piece missing from one's chess set. If one counts short, one knows that another piece remains to be counted. If one does not count short, one knows that no further pieces remain to be counted. Thus, it would seem that one could confirm or disconfirm the

¹ Formalized over all pieces of information (or propositions) p at a time t , denoting a time preceding t as $-t$: " $\forall p, K_{p_t} \leftrightarrow K(\neg K_{p_{-t}})$."

possibility of further pieces of information to know, namely, a game piece. However, one is actually presupposing the presence or absence of a game piece based upon an expected number of rooks, pawns, and so on.

The second possible complaint is very similar. One can know that there is a prime number greater than the largest currently known prime number. The statement makes use of one term known as Euclid's "infinitude of primes theorem," and the second term is known as "prime number."² One can rightfully anticipate an additional prime number *only in virtue of the designated terms*. This is a different sort of presupposition, wherein the previous example the terms being utilized regarded the number of game pieces.

The third example involves tacit assumptions. Take a certain city. In this city, one is searching for the shop with the lowest priced goods. Approaching the problem geographically, one crosses off each firm in time. Now, it would seem that one could disconfirm the possibility of further information, shops to discover, which would be a contradiction. However, several tacit assumptions are present. One is assuming that all shops must occupy space, or that two shops cannot occupy the same space, or shops cannot pass in and out of existence. While most individuals would cede these points, these assumptions actually have no formal foundation.

A second conclusion can be phrased in this manner: One cannot confirm the possibility of additional information to know. Stated differently, this is to say that one cannot know that there is at least one further knowable thing.³ One cannot confirm the presence of at least one more thing to know, as one can only know of the presence of that piece of information upon actually learning that information. Even after having done so, the possible presence of at least one more thing to

² Eric Weisstein, "Euclid's Theorems – from Wolfram MathWorld." Wolfram MathWorld, <<http://mathworld.wolfram.com/EuclidsTheorems.html>> (02 November 2011).

³ One can have knowledge of the name of a thing, such as a "chainsaw." One can learn these letters, as existing in the English alphabet, and also this particular ordering of letters that compose the term. One could also learn what each component of a chainsaw does, and perhaps learn that the components can fit together in such a way. This does not necessarily mean that one knows of a chainsaw as a common tool in a typical context. Thus, there are many tiers of knowledge of a thing. However, this thesis does not suffer if each individual entity of knowledge is posited as a separate acquisition.



know can only be discovered upon actually learning that information, *ad infinitum*. Thus, one can only discover that there *was* something more to know, but not that there are more pieces of information to be known. This is titled corollary two.

This second corollary can be clarified with an illustration. Once more suppose that Richard is a top researcher at a firm. On this occasion, Richard's superior requests a similar research project. As opposed to the previous occasion, Richard's superior indicates a freedom to leave for the night once Richard is reasonably sure that no further objects of research remain. In no more than one hour, Richard resolves to leave the office for the night. The next day when Richard is asked of the early departure, the reply was: "I didn't know of any *further research* remaining to be researched, so I left."

Due to one's inability to guarantee with certainty that there does or does not exist new information to learn, and because it is only after having learned that information that one learns of not knowing it previously, one can therefore never know how much one does not know, because even after learning a new thing one can never know that some other piece of knowledge does not exist. This last conclusion can again be illuminated with an example. John has two joys in life: coffee and friends. This is well and good, since John loves friends and coffee, while John's friends love both John and coffee. One day, however, John discovers that these friends are not coffee-lovers, but tea-lovers. This upsets John terribly, as this deception becomes apparent. Additionally, John learns of the former unknowing of this deception. Since John cannot confirm or disconfirm the possibility of additional information to know, perhaps information that will reveal an additional deception, and because it is only after having learned of another deception that John learns of the former unknowing of that deception, John cannot confirm or disconfirm the possibility of having to confront additional deceptions in the future. Thus, John can never have complete knowledge of this possible unknowing.

II. Axiomatic Systems and Consistency

The most perplexing complication incident to the ignorance postulate concerns an apparent logical issue. To present this issue, some background information may be of use. The process of setting out axioms or postulates to deduce further theorems is known as foundationalism, a form of writing pioneered by

Descartes.⁴ Historically, the process was borrowed directly from mathematics.⁵ Simply put, axioms and/or postulates are established as foundations for the purpose of constructing further truths that cannot be rejected unless one resolves to reject the axioms and/or postulates used in forming those truths.

The complication here is simple: because one can never disconfirm the possibility of additional information to know, one can never disconfirm the possibility of information that will contradict what one thought that one knew. More specifically, one can never disconfirm the possibility of information that will contradict the postulate used in forming this conclusion. Therefore, one is left with an argument demonstrating the ongoing possibility that any given axiom or postulate may be contradicted, including the postulate used to demonstrate this truth. This is a sound argument demonstrating the impossibility of guaranteeing the soundness of any argument; including the soundness of this argument.

With these preliminary conclusions aside, a note should be made regarding a contemporary philosophical debate. Readers must keep in mind that there has only been *one single* initial postulate. In lieu of this, a note concerning one such debate is narrowed considerably in scope. This debate concerns the possibility that “for any proposition *p*, if one knows that *p*, then one knows that one knows it.” This has been titled the KK Principle.⁶ It has been suggested that this disclaimer be inserted to dispel the notion that the KK Principle has been somehow disregarded or excluded. The thesis has not been disregarded because it is irreconcilable with the ignorance postulate, but because it is altogether beside it. The KK Principle, as stated, concerns knowledge of one’s knowledge. The ignorance postulate concerns knowledge of one’s unknowing. These are two very distinct notions that do not appear to be mutually exclusive.

⁴ Rene Descartes, *Meditations, Objections, and Replies* Trans. Roger Ariew (Indianapolis: Hackett Pub, 2006): 94.

⁵ James H. Smith, *Elements of Geometry*, 4th Ed. (London: Rivingtons, 1923): 8.

⁶ David Hemp, “The KK (Knowing that One Knows) Principle,” *Internet Encyclopedia of Philosophy* (15 October 2006), <<http://www.iep.utm.edu/kk-princ/>> (12 November 2011).



III. The Legacy of David Hume

This section presents a line of reasoning culminating with the logical equivalence of the ignorance postulate and David Hume's position regarding the absence of knowledge of a necessary connection. It was in *An Enquiry Concerning Human Understanding* that this proposition was originally advanced.⁷ Hume's thesis indicates that one has no knowledge of any relation that inextricably binds a specific effect to a specific cause. For example, one cannot know with certainty in every instance that pouring vinegar onto baking soda will result in a foamy chemical reaction, although this may indeed have occurred in the past.

A proof by contradiction will be here provided to demonstrate how Hume's thesis is a consequence of the ignorance postulate. Suppose to the contrary that one does have knowledge of a necessary connection. The existence of advanced knowledge of the outcome of an event due to knowledge of a necessary connection would provide one with the knowledge that there is not more to know in that instance. Namely, certain phenomena or effects *will not* occur in that instance. Therefore, one *can* disconfirm the possibility of further information to know, which contradicts corollary one. Hume's conclusion is thus a consequence of the ignorance postulate.⁸

One can also demonstrate the converse of this theorem, that the ignorance postulate is a consequence of Hume's thesis. Before proceeding, a supplemental proof or lemma will be of use. If for every instance one has no knowledge of a necessary connection, one cannot know the outcome of an event before that outcome is observed. Now, suppose that the negation of the ignorance postulate is true, indicating the existence of a piece of information such that one has knowledge of one's unknowing of a thing while actually lacking knowledge of that thing. This contradicts

⁷ Ibid.

⁸ An indirect proof by contraposition can also be derived: If there exists at least one relation such that one has knowledge of a necessary connection, then one can make a prediction such that one knows the outcome of that prediction to be certain. Thus, there exists a piece of information such that one has knowledge of one's unknowing (that supposed effect per that cause) while lacking empirical knowledge of that thing (actually having seen the effect). This satisfies one half of the disjunction presented in section IV as the formal negation of the ignorance postulate.

the constructed lemma, however, as this would indicate knowledge of an outcome before that outcome is observed. Thus, the ignorance postulate must be a consequence of Hume's thesis.

Since Hume's thesis is a consequence of the ignorance postulate and because the ignorance postulate is a consequence of Hume's thesis, the two positions are thus equivalent. The purpose of these demonstrations allude to the broad applicability of the ignorance postulate in any philosophical system that purports to make use of Hume's classic thesis. One who accepts Hume's position must necessarily also accept the ignorance postulate. Perhaps more importantly, one who accepts Hume's thesis must also necessarily accept both corollaries.

Demonstrating the above is also important for matters of completeness. When the concept is presented in *An Enquiry*, it is offered to readers as a series of observations instead of being demonstrated based upon a well-defined axiomatic foundation.⁹ Because of this, one should consider the possibility that one agrees with Hume's position because the epistemic limitation described by the ignorance postulate is true—providing an answer in terms of a general epistemic postulate. This perspective is paramount when seeking to elucidate the founding assumptions incident to one's position. The next section provides a historical juxtaposition of the transition from David Hume to Immanuel Kant that will highlight the conceptual difference that lies at the heart of the Hume-Kant debate; a conceptual difference aptly captured within the single ignorance postulate.

IV. Kant and the Synthetic *A Priori*

In addition to making a general conclusion regarding the Hume-Kant debate, this section purports to demonstrate the equivalence of Kant's position regarding the presence of synthetic *a priori* statements and the negation of the ignorance postulate. If this can be sufficiently demonstrated, both sides of this debate can be represented succinctly all within the conceptual framework of the ignorance postulate.

⁹ David Hume, *An Enquiry Concerning Human Understanding* (Oxford: Oxford University Press, 1999): 40.



The historical transition from David Hume to Immanuel Kant represents a philosophical debate that exists to this day: the question as to whether or not one can know anything based purely on reason alone, outside of the need for empirical discovery. The position of David Hume and the ignorance postulate is unequivocal; one is forever on the cusp of discovery. On this view, the only way to discover is through investigation and nothing can be logically inferred regarding future events or the true way of things.

It may first be helpful to provide a brief definition of synthetic *a priori* statements. A statement is either synthetic or analytic.¹⁰ Analytic statements have predicate concepts contained within the subject. To say that all bachelors are unmarried is an analytic statement, as the predicate “unmarried” is already contained within the subject “bachelors.” Statements of this form are necessarily true or necessarily false in virtue of the concepts in use. A synthetic statement does not contain a predicate within the subject and thus the truth of that statement cannot be concluded in virtue of the concept alone. Kant further distinguishes between *a priori* and *a posteriori* statements. *A priori* statements, contrary to *a posteriori* statements, can be determined as true or false through reason alone, independent of experience.¹¹ While this leaves one with four different combinations of statements, *a priori* synthetic statements will be the main point of focus here as they were for Kant. In summation, *a priori* synthetic statements are statements whose truth or falsity are non-empirical and necessary, statements that would otherwise be considered contingent.

An example of an *a priori* synthetic statement will be instructive. A common yet much debated example utilized by Kant is drawn from mathematics. According to Kant, $7+5=12$ is a synthetic *a priori* statement.¹² In this case, nothing

¹⁰ Readers should note that this distinction is widely objected to, perhaps most notably by Quine is V. W. Quine, “Two Dogmas of Empiricism,” *Philosophical Review* (60): 20-43.

¹¹ Bruce Russell, “A Priori Justification and Knowledge,” *The Stanford Encyclopedia of Philosophy* (09 December 2007) <<http://plato.stanford.edu/archives/win2007/entries/apriori/>> (09 February 2012).

¹² Immanuel Kant, *Critique of Pure Reason*, trans. Max Müller (Garden City: Doubleday, 1966): 145.

about seven or five is contained within twelve. For this reason, $7+5=12$ is synthetic. Additionally, $7+5=12$ is not dependent upon experience once the knowledge of the concepts is acquired. Thus, the statement is also *a priori*.

The negation of the ignorance postulate is of this form: there exists an acquired piece of information such that one has knowledge of one's "former" unknowing of a thing and one lacks knowledge of that thing *or* one has knowledge of that thing and one lacks knowledge of one's "former" unknowing of that thing.¹³ The word "former" has been carried over from the formulation of the original postulate, but it is no longer an adequate adjective to describe the knowledge of one's knowledge. Instead, one might refer to the following adapted formulation without the temporal reference: there exists an acquired piece of information such that one has knowledge of that thing, all while not yet having encountered that thing empirically.¹⁴ For example, this is to say that one has knowledge that one lacks knowledge of x without ever having encountered x in any form.

The following two demonstrations will provide a formal proof of equivalence between the negation of the ignorance postulate and the presence of at least one synthetic *a priori* statement. Both demonstrations are by way of contradiction. If there exists a synthetic *a priori* statement, then there exists a statement p such that one can have knowledge of an outcome without having encountered that outcome empirically.¹⁵ Suppose that the ignorance postulate is true. If the ignorance postulate is true, then for every statement p , one cannot conclude an outcome without having encountered that outcome empirically. This is a contradiction. Therefore, the negation of the ignorance postulate must be a consequence of the presence of

¹³ Formalized rather clumsily here: $\exists p(K_{p,t} \wedge \neg(K(\neg K_{p,t}))) \vee ((K(\neg K_{p,t})) \wedge (\neg K_{p,t}))$. Note that the latter half of this disjunction is of most interest: $K(\neg K_{p,t}) \wedge (\neg K_{p,t})$.

¹⁴ The word "former" was used in the initial postulate as a simple adjective to describe the fact that one lacked knowledge of one's lack of knowledge of that piece of information *before* having gained knowledge of that information. Since the main concept of interest is knowledge of one's knowledge in the context of the order of discovery, the statement does not lose any logical specificity if adjectives are changed slightly. Note that the temporal reference was not removed from the formal negation to make matters of comparison easier.

¹⁵ Readers will notice the striking similarity between the negation of the ignorance postulate and the presence of at least one synthetic *a priori* statement. The statements appear to be more than equivalent; the statements appear to be identical. Nevertheless, demonstrations are provided to allay any possible concern that the statements are not actually equivalent.



at least one synthetic *a priori* statement. The next demonstration provides the truth of the converse. If the negation of the ignorance postulate is true, there exists a statement p such that one has knowledge of an outcome without having encountered that outcome empirically. Suppose that there does not exist at least one synthetic *a priori* statement. Then, for every statement p , one cannot have knowledge of any outcome without having encountered that outcome empirically. This is a contradiction. Therefore, the presence of at least one synthetic *a priori* statement is a consequence of the negation of the ignorance postulate. The two statements, then, are equivalent. It can be said thus that the negation of the ignorance postulate is equivalent to Kant's thesis just as the ignorance postulate is equivalent to Hume's thesis. The postulate represents, in a sense, two sides of the same metaphysical coin. Because the two positions pivot on the ignorance postulate, to reject one is necessarily to accept the other.

V. Summary

This article has been constructed to include many supplemental conclusions while simultaneously constructing a much larger and general conclusion regarding the consistency of two competing logical schemes. The purpose of this investigation was not to bolster evidence in favor of David Hume or Immanuel Kant, but instead to demonstrate that both systems can be discussed through the use of a more general epistemic principle. This was done by providing one such principle, demonstrating the equivalence of that principle to Hume's thesis, only then to negate that principle and demonstrate how the negation is equivalent to Kant's thesis.

While this larger endeavor is significant in and of itself, the supplemental conclusions are provided to demonstrate the way in which one's willingness to accept or reject certain consequences forces one into historically significant metaphysical positions. For example, if one wishes to reject one or both corollaries, one will contradict the ignorance postulate. By so doing, one is forced into the Kantian position. The same result ensues for true statements within the Kantian scheme; if true statements within the Kantian scheme seem unconscionable, then one is forced into Hume's position.

While this exercise does not solve the questions posed by these philosophers, it suggests that the entire debate is actually the result of a more general principle or set of principles. While much debate surrounds the possibility of synthetic *a priori* statements, the outcome of this debate rests only on the open and candid investigation of these ideas. One must remember, however, that the failure to discover such a statement does not demonstrate that such statements do not exist: it simply forces one into the conclusion that one cannot demonstrate the possibility that such statements do not exist. This is the great problem, the problem of ignorance. ❖

