

**Research Article**

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# The Role of Braithwaite's 1973 Editorial Foreword to the Collected Writings of John Maynard Keynes Edition of the *A Treatise on Probability* in The Heterodox Continuity or Change Literature on Keynes's Logical Theory of Probability

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The many errors about Keynes's theory, contained in Frank P. Ramsey's two reviews of 1922 and 1926 concerning Keynes's logical theory of probability as presented by Keynes in his 1921 *A Treatise on Probability*, as well as in Ramsey's correspondence with Keynes and private, unpublished papers written by Ramsey between Jan. 1922 and November 1926, should easily be identified by any reader of the first two chapters of Keynes's *A Treatise on Probability*. However, this will only be the case if a reader has not been biased already, so that there is a predisposition on the part of the reader to believe that Keynes's theory has already been carefully assessed and evaluated by internationally renowned and recognized experts in the history and philosophy of probability, who had found it wanting, by reading Braithwaite's editorial foreword. Ramsey's numerous errors are all integrated by RB Braithwaite into his editorial foreword to the 1973 CWJMK edition of the *A Treatise on Probability* on pp. xiv-xxii.

The extremely rare, careful reader, who had not been already biased in advance by Braithwaite's foreword, of pp.4-6 (related versus unrelated propositions), pp. 36-37(similar versus dissimilar propositions) or pp.50-58 (relevant versus irrelevant propositions)of Keynes's first four chapters of his *A Treatise on Probability*, has already been supplied with sufficient evidence to conclude that all of Ramsey's assertions always deal with two unrelated, irrelevant or dissimilar premises and conclusions, one premise and one conclusion, like "My carpet is blue, Napoleon was a great general."(Ramsey, 1922, p.3).

**Keywords:** Boole; Relational propositional logic; Objective logical probability relation; Imprecise probability**Abbreviations:** TP for *A Treatise on Probability***Introduction**

The paper is organized in the following fashion. Section Two presents the material on pp.4-6, pp.36-37 and pp.52-56 of [1] that easily allows a reader to identify all of F P Ramsey's errors.

Such a reader will realize that Ramsey's entire analysis of Keynes's relational, propositional logic rests on the use of two propositions that are always (a) unrelated, (b) dissimilar or (c) irrelevant. How Ramsey was able to get away with basing his claims on these

examples for over 100 years is the great mystery of both the 20th and 21st centuries. Section Three examines the work of [2-5]. The assessment demonstrates that their acceptance of Ramsey's examples of what Ramsey falsely claimed represented Keynes's theory is due to a complete and total ignorance on their part of what Keynes's Boolean [6] mathematical, formal, symbolic logic was all about. Section Four concludes the paper.

There are two quotations taken from Ramsey, one from Ramsey, 1922 and one from Ramsey, 1926, that establish beyond any doubt that the writer of a paper supposedly dealing with Keynes's logical theory of probability had never read Keynes's *A Treatise on Probability*, but is basing his paper on other previous writers on Keynes, who also had never read Keynes's *A Treatise on Probability*.

The entire corpus of the writings on Keynes's *A Treatise on Probability* can then be traced back to Ramsey's 1922 and 1926 reviews, which serves as the foundation for all work done by philosophers and economists on Keynes's logical theory of probability in the 20th and 21st centuries.

The first quotation is the one dealing with blue carpets and Napoleon:

"My carpet is blue, Napoleon was a great general." [7, p.3]. The second one deals with Ramsey's claim that no one can perceive Keynes's Boolean, objective, logical probability relations between two propositions: "...more fundamental criticism of Mr. Keynes' views, which is the obvious one that there really do not seem to be any such things as the probability relations he describes." [8, p. 27]. Boole would, of course, have ended Ramsey's career with the following one liner: "Mr. Ramsey lacks a knowledge of the basic foundation of the mathematical logic being used to analyze probability, which is a relational, propositional logic." (counterfactual assessment made by the author based on a reading of Boole's replies to his critics).

### **Method- Comparing chapters I and II of the TP with Chapters I, XI, and XII of Boole's the laws of thought (LT)**

Keynes's research program in the TP is to extend Boole's relational, propositional logic and interval valued approach to probability. It is on page 5 of chapter I of the TP that Keynes reveals what this new approach entails:

"With the term "event," which has taken hitherto so important a place in the phraseology of the subject, I shall dispense altogether. † Writers on Probability have generally dealt with what they term the "happening" of "events." In the problems which they first studied this did not involve much departure from common usage. But these expressions are now used in a way which is vague and ambiguous; and it will be more than a verbal improvement to discuss the truth and the probability of propositions instead of the occurrence and the

probability of events.‡" [1, p.5].

The footnote that Keynes appends explains exactly what work Keynes is going to base his work on:

"‡The first writer I know of to notice this was Ancillon in Doutes

sur les bases du calcul des probabilités (1794): "Dire qu'un fait passé, présent ou à venir est probable, c'est dire qu'une proposition est probable." The point was emphasized by Boole, *Laws of Thought*, pp. 7 and 167. See also Czuber, *Wahrscheinlichkeitsrechnung*, vol. i. p. 5, and Stumpf, *Über den Begriff der mathematischen Wahrscheinlichkeit.*" [1, p.5].

One can easily eliminate Ancillon and Stumpf as being innovators in this field. One is then left only with George Boole. It has been universally accepted for over a century and a half that it was George Boole who created the original, relational propositional logic. Keynes did not create a new logic as thought by [9]; he used Boole's logic in a new application in his TP. He applied the new and original logic of Boole. Keynes then greatly extended the applicability of Boole's original, logical system in [1] and [12].

Keynes is correct that, in his footnote on p.5, that on p.7 of [6], Boole first describes what a relational, propositional logic will entail and is correct that on [6, p.167] Boole states, again, that this approach deals with propositions about events and not the events themselves, as well as differentiating between primary and secondary propositions and the truth and falsity of propositions. However, it is apparent that no reader of the TP grasped what this meant as pointed out by Hishiyama in [9].

### **Keynes gives a summary of what this means as far as Keynes's approach is concerned:**

"9. This chapter has served briefly to indicate, though not to define, the subject matter of the book. Its object has been to emphasize the existence of a logical relation between two sets of propositions in cases where it is not possible to argue demonstratively from one to the other. This is a contention of a most fundamental character. It is not entirely novel, but has seldom received due emphasis, is often overlooked, and sometimes denied. The view, that probability arises out of the existence of a specific relation between promises and conclusion, depends for its acceptance upon a reflective judgment on the true character of the concept. It will be our object to discuss, under the title of Probability, the principal properties of this relation. First, however, we must digress in order to consider briefly what we mean by knowledge, rational belief, and argument." [1, p.9]

Unfortunately, Keynes's "... contention of a most fundamental character." has eluded all philosophers and economists, as pointed out by Hishiyama, because they do not know what Keynes's relational, propositional logic is-an extension and development of Boole's original, relational, propositional logic of 1854 in LT.

As an aside, we can now in a position to also dispose of Ramsey's strange and bizarre claim that this type of formal logic can involve only two propositions at a time. Where this claim of Ramsey came from can't be identified. All that can be said is that it does not appear in Keynes's TP. Nowhere in Keynes's TP or anywhere in Keynes's CWJMK will any researcher find that Keynes had restricted the application of his (Boolean) relational, propositional logic to two propositions only: "Let our premises consist of any set of propositions h, and our conclusion consist of any set of propositions a, then, if a knowledge of h justifies a rational belief in a of degree

$\alpha$ , we say that there is a probability-relation of degree  $\alpha$  between a and h.\*"[1, , p.4;see p. 5 for the requirement that there must be a connection between the h and a propositions for any logical relation to connect the sets of propositions and pp.52-56 that the propositions must be relevant to each other and not irrelevant ] and "Between two sets of propositions, therefore, there exists a relation, in virtue of which, if we know the first, we can attach to the latter some degree of rational belief. This relation is the subject-matter of the logic of probability. A great deal of confusion and error has arisen out of a failure to take due account of this relational aspect of probability" [1, p.6)].

Thus, it is easy to provide a complete refutation of both of Ramsey's reviews of 1922 and 1926 with just a knowledge of the first 6 pages of chapter I of the TP. Unfortunately, no academician supplied such a refutation in either the 20th or 21st century.

We are now in a position to compare Keynes and Boole. Boole's general statements appear in chapter I. It is in chapter XVI that Boole repeats the general analysis in a specific, particular form as it relates to probability on p.247: "Before we proceed to estimate to what extent known methods may be applied to the solution of problems such as the above, it will be advantageous to notice, that there is another form under which all questions in the theory of probabilities may be viewed; and this form consists in substituting for events the propositions which assert that those events have occurred, or will occur; and viewing the element of numerical probability as having reference to the truth of those propositions, not to the occurrence of the events concerning which they make assertion.

Thus, instead of considering the numerical fraction  $p$  as expressing the probability of the occurrence of an event  $E$ , let it be viewed as representing the probability of the truth of the proposition  $X$ , which asserts that the event  $E$  will occur. Similarly, instead of any probability,  $q$ , being considered as referring to some compound event, such as the concurrence of the events  $E$  and  $F$ , let it represent the probability of the truth of the proposition which asserts that  $E$  and  $F$  will jointly occur; and in like manner, let the transformation be made from disjunctive and hypothetical combinations of events to disjunctive and conditional propositions. Though the new application thus assigned to probability is a necessary concomitant of the old one, its adoption will be attended with a practical advantage drawn from the circumstance that we have already discussed the theory of propositions, have defined their principal varieties, and established methods for determining, in every case, the amount and character of their mutual dependence." [6, p.247].

### Keynes's general statement appears on p.5:

"With the term "event," which has taken hitherto so important a place in the phraseology of the subject, I shall dispense altogether. † Writers on Probability have generally dealt with what they term the "happening" of "events." In the problems which they first studied this did not involve much departure from common usage. But these expressions are now used in a way which is vague and ambiguous; and it will be more than a verbal improvement to discuss the truth and the probability of propositions instead of the occurrence and

the probability of events. ‡" [1, p.5].

I believe that it is self-evident that Boole and Keynes are using the same approach, a relational, propositional logic which Frank Ramsey was totally ignorant about. Unfortunately, this ignorance also describes the published work of all economists and philosophers in the 20th and 21st centuries involved in the "continuity or changes" literature dealing with Keynes's TP.

### Discussion-The erroneous work of Bateman, Clarke, Gerrard and Misak on Keynes

The Discussion will be divided into four subsections a, b, c and d:

#### Discussion a) B. Bateman-1996

Bateman simply accepts all of Ramsey's claims. I can see no redeeming features of Bateman's work on Keynes except as an example of how to not study Keynes. We will examine Bateman's acceptance of two of the 35 errors made by Ramsey. See [10] and [11]. First, Bateman accepts the nonsense example used by Ramsey to supposedly call into question Keynes's entire application of his Boolean relational, propositional logic: "...my carpet is blue, Napoleon was a great general." [7, p.3]. Bateman quotes Ramsey as if it were obvious that Keynes is all wrong. In fact, it is Ramsey and Bateman who are all wrong. See [2, p.63]. Second, Bateman quotes the Ramsey quote about Keynes's objective, logical, probability relation not really existing: "But let us now return to a more fundamental criticism of Mr. Keynes' views, which is the obvious one that there really do not seem to be any such things as the probability relations he describes. He supposes that, at any rate in certain cases, they can be perceived; but speaking for myself I feel confident that this is not true. I do not perceive them, and if I am to be persuaded that they exist it must be by argument; moreover, I shrewdly suspect that others do not perceive them either, because they are able to come to so very little agreement as to which of them relates any two given propositions." [2, p.65]

Ramsey's error here reflects his ignorance that a relational, propositional logic, like that being used by Keynes, involving related propositions  $h$  and  $a$ , MUST be able to define how the  $a$  and  $h$  propositions are connected by a logical probability relation. Ramsey's total ignorance of Boole's LT is on full display here. See Bateman (1996, pp.65-66).

#### Discussion b) C. Misak-2020

There are so many errors made in Misak on pp.112-121 and 264-273 of her 2020 biography of Ramsey [5, 2020], dealing with Keynes's logical theory of probability, that any one of the pages mentioned can be taken at random, read and the errors easily identified. Consider Misak's confusions about Keynes's modified Principle of Indifference (POI) and the Bernoulli-Laplace version of the POI. Keynes gives the Bernoulli -Laplace version of the POI on p.42 of [1] first. He follows with his modified version of the POI on pp.52-58 of [1]. Misak confuses, just as Ramsey did, the Bernoulli -Laplace version on p.42 of [1] with Keynes's modified version on pp.52-58 of [1]. Ramsey made an intellectual mess of Keynes's POI in both [7] and [8]. So does Misak:

“Keynes thought that probability theory must be able to tell us to what degree we ought to hold beliefs. In his system, not all probabilities are numerical, measurable, and comparable. But to get measurement off the ground where we can, he maintained that we need to assume the Principle of Indifference, which asserts that if there is no known reason for predicating of our subject one rather than another of several alternatives (author’s note—this is the Bernoulli-Laplace version not Keynes), then relatively to such knowledge the assertions of each of these alternatives have an equal probability.

Ramsey was less than impressed. Despite the fact that he was himself in the lineage of Keynes’s continuous chain of Cambridge thought, he had no qualms about knocking down parts of it. Keynes’s theory of probability was his first target. His attack was mounted in a review of the book in the January issue of Ogden’s Cambridge Magazine and in less formal settings. Braithwaite’s reaction indicates just how effective it was. He recalled that he read Keynes’s *Treatise* in the long vacation, immediately after it came out, and said that he swallowed it whole: ‘Whereupon Ramsey produced some pretty serious criticisms of it and shook my beliefs about it.’ [5, p.114]

On page 115, Misak demonstrates here complete and total ignorance of Boole’s relational, propositional logic by simply regurgitating Ramsey’s statements about there not being any such things as Boole’s logical, probability relation: “Here we have the first articulation of a core feature of Ramsey’s way of thinking—a suspicion of anything indefinable or unanalyzable. In ‘Truth and Probability’, he would put his point about Keynes’s probability relations even more disarmingly: ‘I do not perceive them, and...I...suspect that others do not perceive them either because they are able to come to so very little agreement as to which of them relates any two given propositions.’ If someone were to ask him what probability one proposition gave to another, he ‘should not try to answer by contemplating the propositions and trying to discern a logical relation between them’; ‘no one estimating a degree of probability simply contemplates the two propositions supposed to be related by it; he always considers *inter alia* his own actual hypothetical degree of belief’...” [5, p.115]

Of course, they are not Keynes’s logical probability relations, but Boole’s logical probability relations that are being used by Keynes. Ramsey’s “... way of thinking...” has severe errors in it. The belief that Keynes invented the relational, propositional logic of Boole shows how ignorant economists and philosophers are about Boole’s own logical theory of probability presented in 1854.

The large number of errors in Misak about Keynes’s logical theory of probability show that she is simply incompetent and not qualified to discuss Keynes. Neither are the numerous economists and philosophers whom she contacted and relied upon in order to obtain help in the writing of the material on Keynes contained in her book.

### Discussion c) -P. Clarke-2023

A number of major errors are made by Clarke in the following quotations:

“For he insisted that an objective probability could be perceived, basically through intuition” [3, p.122] and

“It was essentially the status of intuition that had guided him here, in asserting that a probability relationship could be perceived on the basis of partial knowledge.” [3, p.122] and “Here is the basis for Anna Carabelli’s pithy contention: ‘Keynes’s probability shared all the attributes of Moore’s concept of goodness: it was a simple notion, unanalyzable, indefinable, non-natural, directly perceived or intuited and objective’ (Carabelli 1988, 31). Hence the young Keynes’s confidence in intuition as the basis for a perception of probability that was nonetheless objective, even though it did not rely upon measurement of frequency; nor could the strength of such a belief be explained as psychological nor could it be satisfactorily measured” [3, p.123].

Clarke has totally and completely missed the George Boole connection. It is from George Boole, and not George Moore, that the objective, logical, probability relation is derived. It is from George Boole, and not George Moore, that Keynes’s relational, propositional logic is derived. Keynes’s views on the incorporation of frequency statements and his imprecise approach to probability measurement come directly from George Boole.

Clarke is then led, as have so many, many others over the last 100 years, to accept the following claim of Frank P Ramsey: “Let us now return to a more fundamental criticism of Mr. Keynes’ views, which is the obvious one that there really do not seem to be any such things as the probability relations he describes. He supposes that, at any rate in certain cases, they can be perceived; but speaking for myself I feel confident that this is not true. I do not perceive them, and if I am to be persuaded that they exist it must be by argument; moreover I shrewdly suspect that others do not perceive them either, because they are able to come to so very little agreement as to which of them relates any two given propositions.” [3, p.129].

One can find the following same, basic error being repeated over and over again by Frank P Ramsey throughout both [7] and [8]:

“...because they are able to come to so very little agreement as to which of them relates any two given propositions.” [3, p.129]. Keynes’s theory has nothing to do with “...which of them relates any two given propositions.” [3, p.129]. Keynes’s theory deals with some sets of different *a* and *h* propositions specified in an argument form that comes directly from George Boole, not George Moore.

### Discussion d) - B. Gerrard- 2023

Gerrard makes a very serious, fundamental and basic error, that is characteristic of current Keynes scholarship in the social sciences, liberal arts and behavioral sciences, but especially in economics and philosophy. This severe error was to accept Ramsey’s assertions about what was entailed by Keynes’s Boolean logic without the provision of any page or chapter citation by Ramsey to the TP to support his claim. Ramsey’s repeated assertions, that Keynes’s relational, propositional logic applies “...to any two given propositions. “Appears nowhere in the TP or anywhere in anything written by Keynes his lifetime, such as his two Fellowship dissertation submissions in Dec., 1907 and Dec., 1908:



“In his 1922 review, using the example of ‘my carpet is blue’ and ‘Napoleon was a great general’, Ramsey criticizes Keynes’s first axiom on the existence and uniqueness of a probability-relation arguing that there is no probability-relation between these two propositions, implying that the very existence of a probability-relation must presuppose some degree of connectedness. Formally, Ramsey is correct that Keynes’s first axiom only rules out the existence of probability-relations for self-contradictory and inconsistent propositions and hence allows for the possibility of a probability-relation between two seemingly unconnected propositions. But Keynes deals with the problem of unconnected propositions elsewhere by allowing for non-existent probabilities which would surely apply to Ramsey’s example as would Keynes’s formal definition of relevance/irrelevance. This criticism becomes superfluous in ‘Truth and Probability’ by which time Ramsey explicitly rejects the existence of probability-relations.” [4, p.199; Further errors are made on p.200 and throughout the Gerrard article ].

Just like Braithwaite [13, 14, 15], Gerrard accepts Ramsey’s claims about an alleged Axiom I that does not exist anywhere in Keynes’s TP. Gerrard accepts the validity of Ramsey’s erroneous “blue carpet, Napoleon” example, which follows as a supposed application directly from Ramsey’s imaginary axiom [7, p.3]. Gerrard then asserts that “But Keynes deals with the problem of unconnected propositions elsewhere by allowing for non-existent probabilities which would surely apply to Ramsey’s example as would Keynes’s formal definition of relevance/irrelevance.” [4]

Of course, Gerrard supplies no page or chapter citations to support his completely unsubstantiated claim about Keynes’s relevance -irrelevance logic, a claim that Bertrand Russell showed leads to the conclusion that no probability exists. A careful reading of Keynes’s conclusion to his discussion of his axiom(i), [1, p.138] shows that it is impossible to derive Ramsey’s imaginary axiom from [1].

“We can only be interested in

1. our final results when they deal with actually existent and intelligible
2. probabilities-for our object is, always, to compare one probability
3. with another-and we are not incommenced, therefore, in our symbolic operations by the circumstance that
4. sums and products do not exist between every pair of probabilities.” [1, p.138].

## Conclusion

Currently, the study of Keynes’s *A Treatise on Probability* and its links to Keynes’s General Theory is a mess of confusion, written by academicians who have no idea what Keynes was doing in the TP. Any progress in Keynes studies would first require an understanding of the Boole -Keynes connection. While this may be possible, it is also highly improbable, given the lack of basic skill in logic, mathematics, probability and statistics, which is the

conclusion I reached in a rejected paper first submitted to the journal *History of Political Economy* in 1979, among the Keynes scholars.

J M Keynes’s logical theory of probability, as presented in his *A Treatise on Probability* in 1921, was built on a logical theory of probability that was first presented in [6]. The claim, that Keynes’s theory of probability is based on Keynes’s Moorean ethics, has no support, although Keynes’s views on ethics and morality were based on George Moore during his lifetime. Keynes’s ‘religion’ was thus the practice of Moore’s version of virtue ethics. Whether he succeeded in the practice of his religion, overall, is open to questions which belong to the field of ethics and moral philosophy, not logical probability.

Keynes’s theory of probability does not deal with mysterious, metaphysical, mystical, Platonic entities that can only be perceived through intuition. Keynes’s theory explains how scientific giants, like Darwin, Einstein, and Pauling, were able to derive new scientific conclusions through their skill in being able to study, assess, weigh, grasp, perceive and understand how the partial evidence available to them at the time could be reformulated theoretically so as to lead to new conclusions and breakthroughs, which had been overlooked by other/lesser minds.

Readers of Braithwaite’s editorial foreword [13, 14, 15, 16] couldn’t help but accept Braithwaite’s claims about errors in Keynes’s logical theory of probability. After all, it was clear that it was Donald Moggridge, the co-editor of *Collected Writings of John Maynard Keynes (CWJMK)*, [15], who had made the decisive error in deciding to place the editorial foreword at the very front of the CWJMK edition of the *A Treatise on Probability*. Any beginning reader of the editorial foreword will have already been set up to believe that there were major errors in Keynes’s work. It would then be reasonable for such a reader to conclude that Keynes’s theory is, at best, a flawed theory, although it might be interesting to examine how modern theory has dealt with Keynes’s flawed approach. The Keynes “Continuity or Change “ literature is primarily based on the work of heterodox economists and philosophers, who claim that Keynes either a) changed his mind completely and repudiated his Boolean, relational, propositional logic, which incorporated Boole’s logical, probability relation, when confronted by the 1922 and 1926 Ramsey reviews (for example, [2, 3, 4, 5]) or b) partially changed his mind about the applicability of the Boolean framework upon which Keynes had erected the foundation for his logical theory of probability (for example, [17], [18] and [19])

Unfortunately, Clarke simply accepts the conclusion of [20], which is based on the “Continuity and Change “ literature, that

“Yet I think Robert Skidelsky justifies in commenting on the impact of Ramsey’s critique that ‘little of the baroque edifice of the *Treatise* was left standing.’ (Skidelsky 1992, 70).” [3, p.130]. One can only conclude that the entire heterodox literature on Keynes and “Continuity or Change “ is based on conclusions reached by Ramsey on pairs of unrelated propositions that Keynes excluded from possible consideration in his combined definitions plus axiom (i) as presented on pp.134-138 of his *Treatise*. Ramsey’s

examples are always composed of two unrelated propositions. Ramsey's conclusions, in both the 1922 and 1926 reviews, and all of the material on Keynes contained in the 1926 essay, "Truth and Probability", are all based on these types of examples. Interestingly, not only does [21, p.120;star footnote] Russell's counterexample to Ramsey, demonstrating the unrelated nature of Ramsey's examples by the following example "2+2 =4, Napoleon disliked poodles." refute Ramsey's 1922 and 1926 reviews entirely, but it completely refutes all of the work published over the last 48 years by heterodox economists [2, 3, 4, 5] and philosophers involved in the "Continuity or Change" literature.

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## Conflict of Interest

There are no conflicts of interest.

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