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## Keynes, a Connoisseur of Boolean uncertainty and the limits of precise numbers

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### Abstract

Unfortunately, Jackson Lears' June, 2023 article and 2023 book on Keynes's applications and assessment of uncertainty and animal spirits, respectively, are based on the erroneous work of the Post Keynesian school of economics on uncertainty and animal spirits, the foundation of which is the severely deficient work of F P Ramsey, I J Good, R. Skidelsky, G L S Shackle and Terrence Hutchison's Pseudo Keynesians (Joan Robinson, Austin Robinson, Richard Kahn, Roy Harrod). The many, many errors in Ramsey's two reviews of 1922 and 1926 or in I J Good's published work on Keynes between 1950-1990, concerning Keynes's logical theory of probability, or in any article published by a Post Keynesian or heterodox economist, on Keynes's 1921 A Treatise on Probability, are easily identified by any reader of Keynes's A Treatise on Probability. Of course, this requires the reader to have been familiar with Keynes's use of (a) Boole's formal, mathematical, symbolic, relational, propositional logic, introduced in chapters I and II of the A Treatise on Probability, and which permeates Keynes's A Treatise on Probability, (b) Keynes's imprecise view of probability, based on Boole's lower and upper, interval valued probability, and (c) Keynes's views on animal spirits, which follow directly from Keynes's understanding of Boole's treatment of this topic in his The Laws of Thought.

The main problem with all heterodox accounts of Keynes's approach in his A Treatise on Probability /General Theory is their complete and total ignorance of Keynes's Boolean based approach that Boole put forth in 1854 in his The Laws of Thought. Keynes always, in general, rejected mathematical expectations as unreasonable, but he never, ever propounded the Post Keynesian and Heterodox claims about basing decision making on comparative or ordinal probability. Keynes's emphasis was on inexact measurement and approximation through the use of interval valued probability and/or decision weights, such as his conventional coefficient,  $c$ . We can call Keynes's approach to expectations "Logical" or "Boolean" expectations. Until this fundamental, basis fact is acknowledged by Post Keynesians and Heterodox economists, it will impossible for them be able to grasp what Hishiyama

termed ,in 1969,Keynes's "new logic of uncertainty." ,which has nothing to do with the Carabelli-Dow dual of an ordinary ,common, discourse logic and the Skidelsky-Moggridge-Lawson-Carabelli-O'Donnell claims about ordinal probability .Keynes's logical expectations has everything to do with Boole's formal, mathematical, symbolic relational, propositional logic and interval valued probabilities. Of course , this will not happen ,given the failure of Heterodox -Post Keynesian economists to read *The Laws of Thought and A Treatise on Probability*.

**Keywords:** Boolean uncertainty, imprecise numbers, interval valued probability, non additivity, Boole -Keynes connection.

## Introduction

The paper will be structured in the following manner. Section Two will cover, in general terms ,topics dealing with the substitution of Ramsey's 1922,1923,and 1926 reviews ,Keynes's 1931 comment on Ramsey's 1926 Truth and Probability, Keynes's 1938 Memoir and G E Moore's 1903 Principia Ethica for a reading of Keynes's A Treatise on Probability .I have written more than 300 papers on the problem of the universal failure of academicians to actually read Keynes's A Treatise on Probability ,as first pointed out by Hishiyama in 1969 .They are available at SSRN, ResearchGate , Academia, edu, *the Journal of Insurance and Financial Management , Theoretical and Practical Research in the Economic Fields, Advances in Politics and Economics*, as well as at some other 11 journals and articles written with my co-author ,Rogerio Arthmar, at *History of Economic Ideas* and *Journal of Economic Thought and Policy*.

Section Three covers Lears' acceptance of the deeply flawed, intellectual quagmire of confusion and ignorance that has been put forth by Post Keynesian, neo Keynesian, Institutional and heterodox economists about Keynes's logical theory of probability, A Treatise on Probability and the connections to the General Theory, as conjectured correctly by Hishiyama in 1969. Section Four will conclude the paper.

### **Ramsey's claims about Keynes's imaginary Axiom I that Ramsey claimed refuted Keynes's logical theory of probability**

Consider the 1922 version of Ramsey's imaginary axiom I : "First, he[author's note -Ramsey is referring to Keynes] thinks that between any two non-self-contradictory propositions there holds a probability relation (Axiom I), for example between 'My carpet is blue' and 'Napoleon was a great general Theory; it is easily seen that it leads to contradictions to assign the probability 1/2 to such cases, and Mr. Keynes would conclude that the probability is not numerical. But it would seem that such cases there is no probability; that, for a logical relation, other than a truth function, to hold between two propositions, there must be some connection between them. If this be so, there is no such probability as the probability that 'my carpet is blue' given only that 'Napoleon was a great general Theory', and there is therefore no question of assigning a numerical value" (Ramsey, 1922, pp.3-4)

Ramsey's ""First, he thinks that between any two non-self-contradictory propositions there holds a probability relation (Axiom I), for example between 'My carpet is blue' and 'Napoleon was a great general Theory'" is a figment of his own imagination that he made up out of the thin air. The 100 plus years universal belief among academicians (see Misak (2020),Gerrard (2023) or Clark(2023) that this refutes Keynes's logical theory of probability is ludicrous and preposterous nonsense.

Now consider the 1926 version of Ramsey's imaginary axiom I :

"Mr. Keynes accounts for this by supposing that between any two propositions, taken as premiss and conclusion, there holds one and only one relation of a certain sort called probability relations; and that if, in any given case, the relation is that of degree  $\alpha$ , from full belief in the premiss, we should, if we were rational, proceed to a belief of degree  $\alpha$  in the conclusion." (Ramsey, 1926.In Kyburg and Smokler (eds.), 1980 (2<sup>nd</sup> ed.), p.26) Ramsey has done something that is very dishonest and amounts to a willful, well thought out plan of deception, duplicity and deceit. Ramsey combines his 1922 version with a portion of Keynes's axiom (i) from page 135 in chapter 12.Ramsey combines "Mr Keynes accounts for this by supposing that between any two propositions..." , which is another version of his 1922 made up creation with the following parts of Keynes's axiom (i) from page 135: "...there exists one and only one relation of probability P between a as conclusion and h as premiss. Thus any conclusion a bears to any consistent premises h one and only one relation of probability" (Keynes, 1921,p.135).

No economist, philosopher, historian, psychologist, decision theorist, social scientist, behavioral scientist, mathematician or statistician, writing on Keynes's logical theory of probability, has ever pointed out in the last 103 years that neither of the two Ramsey definitions exist in Keynes's A Treatise on Probability (TP, 1921).No one has pointed out that both definitions make no sense. No one has pointed out that the 1926 definition of Ramsey is a carefully planned, prepared, crafted calculated, and constructed intellectual fraud perpetrated by Ramsey. This then leads to the realization that no one in academia ever read Keynes's *A Treatise on Probability* and that no one has any idea about the Boolean foundations ,upon which Keynes 's decision theory was constructed, in Keynes's TP.

The nonsense about Keynes's theory being an ordinal one comes from Ramsey. The nonsense about Keynes's Boolean, objective, logical, probability relation, P, that connects the a and h propositions in his argument form, (a/h) ,being a metaphysical, Platonic entity, comes from Ramsey. The claims about Keynes's mysterious, logical probability relations comes from Ramsey. Unfortunately, all Post Keynesian, Institutional ,neo-Keynesian and heterodox perspectives on Keynes's TP are founded on Ramsey's intellectual fraud.

### **The severe errors in Lears' understanding of Keynesian uncertainty and TP**

J. Lears telegraphs his misunderstandings of Keynes's approach to numbers in the title of his paper, "A Connoisseur of Uncertainty: John Maynard Keynes and the limits of numbers. "Keynes's understandings of uncertainty originate in the work of George Boole's *The Laws of Thought*, which contain the world's first mathematically advanced approach to imprecise probability in chapters XVI-XXI. Keynes's chapters in his TP , I ,II,X-XVII,XX



and XXII, follow Boole's chapters exactly. The Keynes's critique of precise numbers is not replaced by Skidelsky's, Mogggridge's, Ramsey's, Carabelli's, O'Donnell's, Davis's, Runde's, etc., ordinal probability, which directly violated the logical structure of his logical theory of probability. It is replaced by imprecise probability, which Keynes referred to as "non - numerical probability" or reasonable calculation. Thus, Keynes is NOT opposed to reasonable calculation, but to unreasonable calculations based on mathematical expectations, as originated in the work of Jeremy Bentham in 1787 as a challenge to Adam Smith's imprecise approach to probability, originally presented in Chapters X and XI of Part I of *The Wealth of Nations*.

Lear's ignorance of Keynes's logical approach leads to assessments like "...Even before the Great War had shattered the foundations of Victorian certitude, he questioned the implicitly positivist pillars of economic wisdom—especially the role that rational calculation was alleged to play in financial markets... By 1910, he was already bringing his awareness of uncertainty to bear on his view of investors' motives—to formulate the foundation of his insight into the centrality of animal spirits...As Keynes wrote, the investor "will be affected, as is obvious, not by the net income which he will actually receive from his investments in the long run, but by his expectations. These will often depend upon fashion, upon advertisement, or upon purely irrational waves of optimism or depression." Decisions were rooted in subjective experience, not objective data; to pretend otherwise was to try quixotically to calculate the incalculable."(Lears, 2023,p.3).

Lears simply is ignorant of Keynes's discussions on pp.161-163 of the *General Theory*, where Keynes emphasizes the role of reasonable calculation and confidence, not animal spirits, which are strictly of a complementary concern, under conditions of partial knowledge and partial ignorance, which is Keynes's (and Knight's) definition of uncertainty. Neither Keynes nor Knight would pay the slightest attention to Post Keynesian inventions like fundamental uncertainty, irreducible uncertainty, radical uncertainty, ontological uncertainty, etc. Lears' one foray into the *A Treatise on Probability*, in chapter III, is based on very severe errors, taken from Skidelsky's reliance on Ramsey's intellectually worthless claims about chapter III, in the second volume of his biography on Keynes in 1992: "Comparative judgments of probability are not numerical, Keynes observed; they are approximations, not precise calculations. And sometimes they are arbitrary. Consider the question of whether it is more or less likely to rain. There are times, he wrote, when "it will be an arbitrary matter to decide for or against the umbrella. If the barometer is high, but the clouds are black, it is not always rational that one should prevail over the other in our minds, or even that we should balance them—though it will be rational to allow caprice to determine us and to waste no time on the debate." Few devotees of reason were as willing as Keynes to grant so much space to caprice, even in trivial matters."(Lears,2023,p.5).

First, it is mathematically impossible for "...Comparative judgments of probability...", ordinal probability, to deal with approximations, which are imprecise calculations. Second, the problem under discussion by Keynes, about taking /not taking an umbrella, is an interval valued problem, where, due to conflicting evidence,"... If the barometer is high, but the clouds are black", the interval probabilities of taking /not taking an umbrella, overlap closely. In this case, Keynes is relying on an indirect application of his Principle of Indifference. Thus, Keynes's conclusion is that,

while it is true that it is the case"... that the probability of most events could ever be precisely measured.", they can be measured imprecisely.

## Conclusions

Lears article is another example in the year 2023 of the ongoing complete and total intellectual bankruptcy of Keynes's monumental and path breaking work in probability and macroeconomics that is currently taking place, as exemplified by the works of B. Gerrard (2023a,b,c), P. Clarke (2023), the August, 2023 Katzner symposium on probability in the *Journal of Post Keynesian Economics*, F.Terra (2023), and now Lears (2023), means that the continuing farce taking place in the so called "Keynes studies" of C. Misak, will continue on unabated in the 21st century. Until assessments of Keynes are based on what he actually wrote in his TP, and not the intellectual frauds of F P Ramsey, the logical connections that exist between the TP and GT will never be discovered by any economist or philosopher.

## References

1. Arthmar, Rogério & Brady, Michael Emmett. (2016). The Keynes-Knight and the de Finetti -Savage's Approaches to Probability: An Economic Interpretation. *History of Economic Ideas*, Vol. XXIV, no.1, pp.105-124.
2. Arthmar, Rogério & Brady, Michael Emmett. (2017). Reply to Feduzi, Runde, and Zappia. *History of Economic Ideas*, Vol. XXV, no.1, pp.55-74.
3. Bateman, B.W. 1987. Keynes's Changing Concept of Probability. *Economics and Philosophy*, 3, pp.97-120.
4. Bradley, Seamus. (2019). "Imprecise Probabilities", *The Stanford Encyclopedia of Philosophy* (Spring 2019 Edition), Edward N. Zalta (ed.), Supplement to *Imprecise Probabilities-Historical appendix: Theories of imprecise belief*  
<<https://plato.stanford.edu/archives/spr2019/entries/imprecise-probabilities/>>.
5. Brady, Michael Emmett. 2004a. J. M. Keynes' Theory of Decision Making, Induction, and Analogy: The Role of Interval Valued Probability in His Approach. Philadelphia; Pennsylvania: Xlibris Corporation.
6. \_\_\_\_\_. 2004b. *Essays on John Maynard Keynes and ...* Philadelphia, Pennsylvania: Xlibris Corporation.
7. Brady, Michael Emmett and Arthmar, Rogerio. (2012). Keynes, Boole, and the Interval Approach to Probability. *History of Economic Ideas*, 20, 3, pp.65-84.
8. Brady, Michael Emmett. (2017). On J M Keynes's Original Contributions to Decision Making Under Uncertainty: Indeterminate, Interval Valued Probabilities in Part II of the *A Treatise on Probability* and Imprecise, Interval Valued Probabilities in Part V of the *A Treatise on Probability* (November 11). Available at SSRN: <https://ssrn.com/abstract=3069679> or <http://dx.doi.org/10.2139/ssrn.3069679>.
9. Brady, Michael Emmett. (2019). Professor Sakai's Conjecture About the Diagram on Page 39 (Page 42 of the 1973 CWJMK Edition) of the 1921 Edition Illustrating Keynes's Interval Probability: His Heuristically Correct Analysis of Keynes's Probability Intervals Is Supported by Keynes's Worked Out Problem on pp.162-163 of the *A Treatise on Probability* and Footnote on p.161 (March 7, 2019). Available at SSRN:

- <https://ssrn.com/abstract=3348201> or <http://dx.doi.org/10.2139/ssrn.3348201>.
10. Brady, Michael Emmett. (2019), How Keynes Solved the 'Mystery' of the Diagram on Page 39 (Page 42 of the 1973 CWJMK Edition) of the A Treatise on Probability in Part II in Chapter 15 on pp.161–163 Just As He Had Foretold on pp. 37–38 of Chapter III (March 9). Available at SSRN: <https://ssrn.com/abstract=3349602> or <http://dx.doi.org/10.2139/ssrn.3349602>.
  11. Brady, Michael Emmett. (2019). An Examination of Some Possible Explanations for the Existence of the 'Mystery' Concerning the Only Diagram in the A Treatise on Probability on Page 39 (Page 42 of the 1973 CWJMK Edition) (March 10). Available at SSRN: <https://ssrn.com/abstract=3349928> or <http://dx.doi.org/10.2139/ssrn.3349928>.
  12. Brady, Michael Emmett. (2019). Keynes's Theory of Measurement is contained in Chapter III of Part I and in Chapter XV of Part II of the A Treatise on Probability (1921; 1973 CWJMK Edition): Keynes Stated That the Exposition in Chapter III of the a Treatise on Probability Was 'Brief', While the Exposition in Chapter XV, Part II, Of the a Treatise on Probability, Was 'Detailed' (March 12). Available at SSRN: <https://ssrn.com/abstract=3350852> or <http://dx.doi.org/10.2139/ssrn.3350852>.
  13. Brady, Michael Emmett. (2019). Keynes Demonstrated in Chapter 15 of the A Treatise on Probability That His Non-Numerical Probabilities Are Identical to Boole's Constituent Probabilities: It Is Mathematically Impossible for Keynes's
  14. Non-Numerical Probabilities to Be Ordinal Probabilities (September 22). Available at SSRN: <https://ssrn.com/abstract=3457973> or <http://dx.doi.org/10.2139/ssrn.3457973>.
  15. Brady, Michael Emmett. (2019). On the Erroneous Heterodox and Post Keynesian Belief That Keynes's Interval Valued Decision Theory in the A Treatise on Probability (1921) Was an Ordinal Theory of Probability (November 24). Available at SSRN: <https://ssrn.com/abstract=3492506> or <http://dx.doi.org/10.2139/ssrn.3492506>.
  16. Brady, Michael Emmett. (2019). On the Need for an Extensive Revision of the 'Imprecise Probabilities' Entry regarding Boole and Keynes in The Stanford Encyclopedia of Philosophy (Spring, 2019 Edition) in the ' Supplement to Imprecise Probabilities-Historical appendix: Theories of Imprecise Belief.' (November 30). Available at SSRN: <https://ssrn.com/abstract=3495817> or <http://dx.doi.org/10.2139/ssrn.3495817>.
  17. Brady, Michael Emmett. (2020). The Claim That the Diagram on Page 39 of Keynes's a Treatise on Probability (1921) Represents 'Keynes's View of Probability' (S. Bradley, 2019), Has No Support: It Represents a Very Brief Introduction to Part II of Keynes's a Treatise on Probability On Non Additive Probability (January 13). Available at SSRN: <https://ssrn.com/abstract=3518231> or <http://dx.doi.org/10.2139/ssrn.3518231>.
  18. Brady, Michael Emmett. (2020). A Historical Summary of How a Severe Misinterpretation of the only Diagram in Keynes's A Treatise on Probability in Chapter III on Page 39 Spread to Philosophers: From G. Meeks (1976) to S. Dow and V. Chick (2012) to S. Bradley (2019) (February 5). Available at SSRN: <https://ssrn.com/abstract=3532241> or <http://dx.doi.org/10.2139/ssrn.3532241>.
  19. Brady, Michael Emmett. (2020). Keynes's Application of Inexact Measurement and Approximation in Chapter 15 of the A Treatise on Probability Directly Conflicts with R. O'Donnell's Claims in His Chapter 3 concerning Keynes's Approach to Measurement in His 1989 Book, 'Keynes, Philosophy, Economics, and Politics' (May 11). Available at SSRN: <https://ssrn.com/abstract=3597804> or <http://dx.doi.org/10.2139/ssrn.3597804>.
  20. Carabelli, A. M. (2021). Keynes on Uncertainty and Tragic Happiness: Complexity and Expectations. Springer Nature;Germany.
  21. Carabelli, A. (1988). On Keynes' Method. New York, St. Martin's.
  22. Clarke, P.(2023).Keynes at work. United Kingdom; Cambridge University Press.
  23. Faulkner, P., Feduzi, A., McCann Jr, C. R., & Runde, J. (2021). FH Knight's Risk, Uncertainty, and Profit and JM Keynes' Treatise on Probability after 100 years. Cambridge Journal of Economics, 45(5), pp.857-882.
  24. Garner, C.A. 1983. 'Uncertainty' in Keynes' General Theory: A Comment. History of Political Economy, 15, pp.83–86.
  25. Gerrard. (2023 a). Ramsey and Keynes Revisited.Cambridge Journal of Economics, 47, no.1(January),pp.195-213.
  26. Gerrard, B. (2023 b) .Keynes, Ramsey, and Pragmatism. Journal of the History of Economic Thought. ISSN 1053-8372. (In Press).
  27. Gerrard ,B.(2023 c). The Road Less Travelled: Keynes and Knight on Probability and Uncertainty. Review of Political Economy (In Press) .DOI: 10.1080/09538259.2022.2114291
  28. Hishiyama , I. (1969). The Logic Of Uncertainty according to J. M .Keynes. Kyoto University Economic Review, 39, no. 1,pp. 22-44.
  29. Katzner, D. (2023).The problem with probability.JPKE, Vol.46, no.3, pp.379-399.
  30. Lawson, T. (1985) Uncertainty and Economic Analysis. Economic Journal, 95, pp. 909–27.
  31. Lawson, T. (1987). "The Relative/Absolute Nature of Knowledge and Economic Analysis." Economic Journal 97:951–70.
  32. Lears, Jackson.(2023).A Connoisseur of Uncertainty: John Maynard Keynes and the limits of numbers. Commonweal,(June 18),pp.1-7.
  33. Meltzer, A.H. 1981. "Keynes's General Theory: A Different Perspective." Journal of Economic Literature. 19, pp. 36–64.
  34. O'Donnell, R. (2021). Keynes and Knight: risk-uncertainty distinctions, priority, coherence and change. Cambridge Journal of Economics, 45(5), pp. 1127-1144.
  35. Shackle, G.L.S. 1979. Imagination and the Nature of Choice. Edinburgh: Edinburgh University Press.
  36. Stohs, Mark (1980).'Uncertainty' in Keynes' General Theory. History of Political Economy, Fall, 12, (3), pp. 372-382.

37. Stohs, M. 1983. 'Uncertainty' in Keynes' General Theory: A Rejoinder. *History of Political Economy*, 15, pp.87–91.
38. Terra, Fabio.(2023).*The Economics of John Maynard Keynes*. Routledge; Taylor and Francis
39. Watt, D.E. 1989. "Not Very Likely: A Reply to Ramsey." *British Journal of the Philosophy of Science* ,40, pp.23–27.
40. Weatherson, Brian. (2002). Keynes, uncertainty and interest rates. *Cambridge Journal of Economics*, (January), Vol. 26, No. 1, pp. 47-62.
41. Weintraub, E.R. 1975. Uncertainty and the Keynesian Revolution. *History of Political Economy* ,7, pp.530–48.