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I.J. Good's Claim, That Keynes's Evidential Weight of the Argument, V , a Logical Relation, is a Number, is False

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Abstract: All current assessments of how Keynes's weight (evidential weight of the argument) concept is measured are erroneously based on a metaphor ignored by I.J. Good, which Keynes used before he presented the mathematical analysis involved in measuring weight in chapter 26 of the *A Treatise on Probability*, on page 77 of chapter 6 to measure weight.

Keynes's chapter 26 is the omega while chapter 6 is the alpha. It is impossible to fully grasp Keynes's evidential weight of the argument concept, first presented as a logical relation designated as V , which is then measured through the construction of an index of weight in chapter 26, without a detailed study of pp. 310-315 of chapter 26 of the *A Treatise on Probability*.

The misbelief that Keynes's concept of the evidential weight of the evidence, $V=V(a/h)$, in chapter 6 of the *A Treatise on Probability*, represented a measure of the absolute amount of Knowledge, defined as K by Good to represent a gross measure of weight, can be traced back to numerous book and journal article contributions made by I.J. Good between 1950 and 2000.

The most severe errors about chapter 6 of the *A Treatise on Probability* were repeated again and again by Good from 1950 to 1990 (Good 1950, 1960, 1962, 1965, 1967, 1967, 1968/70, 1970/71, 1975, 1983a, 1983b, 1985, 1988, 1988, Good and Toulmin 1968).

Good completely overlooked Keynes's footnote 1 on page 76 of chapter 6 to chapter 26 of the *A Treatise on Probability*, where Keynes stated that he would discuss how to integrate weight into a discussion of "...the application of probability to practice." This would require a mathematical analysis and, obviously, would require the restriction that $V(a/h)=w$, $0 \leq w \leq 1$, and w is the degree of the completeness of the information so as to be able to combine it with $0 \leq \alpha \leq 1$, where $P(a/h)=\alpha$ and α is the probable degree of rational belief.

Keywords: evidential weight of the argument; weight; logical relation; mathematical variable; metaphor.

JEL Classification: B10; B12; B14; B16; B18; B20; B22.

Introduction

The paper will be organized in the following manner. Section One will examine the original error made by I.J. Good, as presented by him first in 1950 and then repeated in a series of articles and books. I will concentrate on the errors that appear in a paper in a collected volume published in 1988 and republished in 2012, as well as a book written in 1983. Section Two will examine the mathematical confusion created by setting V , a logical relation, equal to K , K/I or $K/[K+I]$, all of which are mathematical equations involving the amount of Knowledge, K , and the amount of Ignorance, I . It is impossible to normalize V on the unit interval $[0,1]$ as done repeatedly since 2011 by A. Vercelli (2011, 2013, 2016, 2018). Section Three will examine Runde's error of treating V as a mathematical variable. Section Four will examine the impact on the literature that results from the failure to correct past errors. The conclusions end the paper.

1. I. J. Good's Mistaken Understanding of Keynes's Initial, Logical Treatment of the Evidential Weight of the Evidence, V , Relation in Chapter 6 of the TP

Philosophers and economists continue to erroneously claim that Keynes's Evidential Weight of the Argument, $V=V(a/h)$, which is a logical relation holding between the h and a proposition, is always increasing monotonically over time. This doesn't make any sense because a logical relation can't increase or decrease. The false claim that weight is monotonically increasing is based on a severe misreading of a metaphor Keynes used in chapter 6 of his *A Treatise on Probability* to help explain why the Evidential Weight of the Argument is different from probability. The logical strength of an argument, which has more relevant evidence, will be stronger when compared to the logical strength of an argument with less relevant evidence. It is also the case that we will know more eventually if we later discover additional relevant evidence that establishes that we, in fact, did not really know what we thought we knew regarding the logical strength of the two arguments. However, Keynes's point, that an argument with more relevant evidence is stronger, has nothing to do with measurement because logical or mathematical relations are not variables that can take on different numerical values.

What is required to actually measure the evidential weight of an argument, V , mathematically, as opposed to logical considerations, is to define an index for the evidential weight of the argument that is normalized on the unit interval between 0 and 1, an approach which is identical to the normalization of probability on the unit interval between 0 and 1, so that one can talk about different degrees of probability and different degrees of weight. Any attempt to discuss Keynes's concept of weight is an exercise in futility unless the correct logical and mathematical structure has been provided first, so that one can talk about different degrees of probability and different degrees of knowledge and ignorance. Such a structure was not provided by Keynes in Chapter 6 of the *A Treatise on Probability*. However, Keynes did create such a structure in chapter 26 of the *A Treatise on Probability*. First, Keynes had to define $V(a/h)$, a logical relation, to be equal to a range of different degrees. Keynes designated this mathematical variable as w , where w is first normalized on the unit interval $[0,1]$ and represents the degree of completeness of the relevant information on which the probability is based. Therefore, $V(a/h) = w$, $0 \leq w \leq 1$ performs the same task for Keynes as α does for his other logical relation, $P(a/h) = \alpha$, $0 \leq \alpha \leq 1$.

Given that w measures the degree of the completeness of the relevant information, so that $V(a/h)=w$, $0 \leq w \leq 1$, Keynes can then combine P and V in chapter 26 into his "conventional coefficient of weight and risk, c ", where c is also normalized on the unit interval between 0 and 1 for the specific form chosen by Keynes that integrates both non additivity, sub additivity, and non linearity in the decision weights chosen by Keynes, which were $[2w/(1+w)]$ and $[1/(1+q)]$, respectively. It is mathematically impossible for w to be monotonically increasing in w . Keynes's c coefficient was chosen by Keynes to illustrate the non additivity and non-linearity of the decision weights, where $w=K/(K+I)$ and K denotes the absolute amount of knowledge while I denotes the absolute amount of Ignorance. This is practically the same format Keynes used to define α , $\alpha = p/(p+q)$, where p is the probability of success and q is the probability of failure.

The complement of α is $1-\alpha = q/(p+q)$. The same type of analysis shows that the complement of $w = K/(K+I)$ is $1-w = I/(K+I)$, since $K+I=1$ allows for the normalization of w on the unit interval.

The major error committed in all journal articles and books, published over the last eighty-eight years that deal with Keynes's V relation, starting with the severe errors regarding Keynes made by I.J. Good in his 1950 *Probability and the Weighing of Evidence*, is to completely confuse the logical relation of Keynesian weight, V , with its measurement by w . This error follows directly from Good's complete misinterpretation of the following quote from page 77 of the *A Treatise on Probability*: "The fundamental distinction of this chapter may be briefly repeated. One argument has more weight than another if it is based upon a greater amount of relevant evidence; but it is not always, or even generally, possible to say of two sets of propositions that one set embodies more evidence than the other. It has a greater probability than another if the balance in its favour, of what evidence there is, is greater than the balance in favour of the argument with which we compare it; but it is not always, or even generally, possible to say that the balance in the one case is greater than the balance in the other. The weight, to speak metaphorically, measures the sum of the favourable and unfavourable evidence, the probability measures the difference." (Vercelli 2011).

Keynes is talking, as he himself so clearly stated, metaphorically about weight, V . Keynes's statements were completely and totally misinterpreted by I.J. Good, as well as by all of the academicians who followed him, who dealt with Keynes's weight concept.

Consider the following two statements by Good, which are representative of all of Good's assessments of Keynes's 'weight' relation in the period 1950-1990 (Edgeworth 1922b; Good 1950, 1950, 1960, 1962, 1965, 1967, 1967, 1968/70, 1970/71, 1975, 1983a, 1985, 1988, Good and Toulmin 1968).

First, we have the following claim:

“The expression was used by J. M. Keynes (1921, 71) in a less satisfactory sense, to apply to the total bulk of evidence whether any part of it supports or undermines a hypothesis, almost as if he had the weight of the documents in mind.” (Good 1983a, 160).

Second, we have another version of the above statement:

“I don't interpret the expression “weight of evidence” as proportional to the weight of the paper that the evidence is written on. Such a definition would not be worth the paper on which it (Good's emphasis was placed in italics) is written. Even J.M. Keynes (1921, 71-78, 312), who toyed with this essentially uninteresting interpretation, though he usually called it “the weight of argument...” (Good 1988, 28).

Good then goes on to string 6-7 individual sentences, taken out of context from Chapter Six of Keynes's *A Treatise on Probability* (Keynes 1921, Kasser 2016, Joyce 2005), that ignore that V is a logical relation and presents this as evidence substantiating his interpretation made about Keynes's V concept, an interpretation that is never even mentioned, in the far, far superior work on chapter six of the TP combined with chapter 26 of the TP, done by Edgeworth, Russell, and Broad in 1922 (see Brady 2018a, 2018b, 2020a, 2020b). Edgeworth (1922a, 1922b) given his request that the readers of *Mind* needed to assist him in figuring out the importance of Keynes's new conventional coefficient of weight and risk, c , would reject every single one of Good's numerous criticisms of Keynes, given that Keynes had restricted the MEASURE of V to w to the unit interval between 0 and 1, so that $0 \leq w \leq 1$ in the c coefficient. Any claim about Keynes's chapter 6 discussions, about some purported absolute measure of weight, is the result of a reader having overlooked the mathematical, technical developments undertaken by Keynes in chapter 26. Nowhere in the corpus of Good's work in his lifetime is there any evidence that he read either of Edgeworth's book reviews of the TP (Edgeworth 1922a, 1922b). It would have saved Good from having made a number of erroneous statements about Keynes's V concept.

We can now go into greater detail about the nature of Good's errors.

Keynes's 'weight of the argument' in chapter 6 of the TP refers to a logical relation while the measurement of V in chapter 26 of the TP refers to a mathematical analysis. Keynes's $V=V(a/h)$ is a LOGICAL RELATION. It is not a MATHEMATICAL VARIABLE. The application of the logical relation, V , as it relates to an argument's strength (major premises, minor premises, and conclusion, where a is the conclusion and h are the premises), is different from the mathematical analysis of w , where w is defined as the degree of the completeness of the relevant information and is MEASURED on the unit interval between $[0,1]$ in chapter 26 on page 315. w is a mathematical variable; V is a logical relation. V does not MEASURE anything. It simply shows that one argument is logically stronger than another argument if it is based on more relevant evidence. Therefore, $V(a/h_1, h_2, h_3, h_4, h_5, h_6, h_7)$ is a stronger argument than the argument $V(a/h_1, h_2, h_3, h_4)$, by definition of the logical relation, V , because it has more relevant evidence supporting it, while the other argument has less evidence supporting it. Therefore, $V(a/h_1, h_2, h_3, h_4, h_5, h_6, h_7)$ is a stronger LOGICAL ARGUMENT than $V(a/h_1, h_2, h_3, h_4)$.

However, NO MEASUREMENT is being engaged in at this point by Keynes.

Contrary to Good and all of his supporters in the economics and philosophy professions, Keynes has presented no MEASURE. where $V(a/h) = K$ is purported to be a MEASURE of the absolute amount of relevant knowledge. This argument is where Good gets into big trouble. Good takes $K=7$ from $V(a/h_1, h_2, h_3, h_4, h_5, h_6, h_7)$ and $K=4$ from $V(a/h_1, h_2, h_3, h_4)$. Of course, we then have the claim that $V(a/h_1, h_2, h_3, h_4, h_5, h_6, h_7)$ is stronger because 7 individual pieces of knowledge are greater than 4 individual pieces of knowledge, and $7-4=3$ means there are 3 more pieces of knowledge in the first argument. Good has converted V from a logical relation into a mathematical variable. Good apparently never realized that this is impossible to do.

From this, Good jumped to the queer conclusion that is provided above, that “I don't interpret the expression “weight of evidence” as proportional to the weight of the paper that the evidence is written upon. Such a definition would not be worth the paper on which it is written...”

Good would also have erred egregiously and most severely in claiming that, since the argument $V(a/h_1, h_2, h_3, h_4, h_5)$ has five pieces of knowledge, it is a stronger LOGICAL argument than $V(a/h_1, h_2, h_3, h_4)$, which only has four pieces. Good is presenting Keynes as arguing that his MATHEMATICAL MEASURE for the weight of the argument, V , is given by the absolute amount of total relevant evidence, K . Only in chapter 26 is Keynes's entire presentation and discussion completed.

Good never bothered to read chapter 26 and, as a result, his analysis does not hold water.

Good's argument would only make some sense if there was no chapter 26 in the TP.

Of course, it is in chapter 26, sections 7 and 8, where Keynes provides a MEASURE of V . Keynes's MEASURE of V is that $V(a/h) = w$, where w equals $K/(K+1)$ and w has first been normalized on the unit interval $[0,1]$.

One can now combine the analysis of both chapters six and twenty-six of the TP to obtain Keynes's complete analysis, which is given below:

Given $V=V(a/h) =V(a/h_1,h_2,h_3,h_4,\dots,h_n,h_{n+1},\dots)$, we can normalize, so that $V(a/h)=w, 0\leq w\leq 1$, where $w=K/[K+I]$ and $1-w=I/[K+I]$. We can now incorporate this into a mathematical decision rule that combined both probability and weight. Of course, what results is Keynes's very complex and complicated c coefficient. This is easily seen by using *Mathematica* to generate three dimensional contours.

Good's erroneous analysis shows up continuously in academic works. An example is the book, edited by S. Brandolini and R. Scazzieri, titled *Fundamental Uncertainty* (Vercelli 2011). Parts of this book are based on using Good's papers, as well as Runde's work, who, like Good, accepts the evaluation of K as representing a MEASURE of the absolute amount of relevant knowledge, as the foundation for analyzing and evaluating Keynes's concept of weight. This is most pronounced in the first two contributions, by H. Kyburg (2011), and I. Levi (2011). However, this error, either directly or indirectly, is implicit whenever there is a discussion of weight in the other chapters in the book. No where in the book is the correct mathematical specification, $V(a/h)=w, 0\leq w\leq 1$, stated or even suggested.

2. A. Vercelli's Confused Mixing up of Keynes's Logical and Mathematical Analysis in Chapters 6 and 26

The mathematical errors committed, as regards the analysis of the measurement of Keynes's 'weight of the argument', by A. Vercelli, have been made by him repeatedly in many articles and book contributions over and over again since 2011 (Vercelli 2011, 2013, 2016, 2018). This paper will concentrate on (Vercelli 2011) in Brandolini and Scazzieri.

A. Vercelli's major error is to confuse a logical argument with a mathematical analysis. It is mathematically impossible to claim, as A Vercelli does, that the logical relation, V, is a mathematical variable, like Keynes's w. V and w are, for Keynes, two completely distinct and different parts of the analysis. Keynes separates the analysis into two different chapters. Chapter 6 of the TP provided the logical analysis of V. There is no mathematical analysis of a decision rule that would incorporate both probability and weight into a single equation, as Keynes does with his c coefficient in chapter 26, in chapter 6. Chapter 26 provided the mathematical analysis of w that allows Keynes to demonstrate the great complications that result when one attempts to combine both variables into one mathematical analysis. The result is extreme complexity.

Keynes thus demonstrated how the integration of 'weight' mathematically creates difficulties regarding the application of probability in practice. Keynes does this by the creation of his conventional coefficient of weight and risk, c, which was the first decision weight approach made in the history of decision making. Keynes demonstrated that the incorporation of weight created significant complexity for formal methods of analyzing decision making. The result was that the linear and additive approach based on probability alone was turned into a non - linear and non -additive approach that severely complicated the formal analysis of ALL decision making. Vercelli ignores all of this. It will be demonstrated below that Vercelli's analysis is mathematically incorrect. Vercelli uses the notation $V(x/h)$, instead of Keynes's $V(a/h)$. Vercelli's $V(x/h)$ will be replaced by Keynes's $V(a/h)$ without any loss in generality.

Following Runde (1990), Vercelli (2011) reconsiders Runde's three versions of the evidential weight of the argument, V:

$$V(a/h) =K, V(a/h)=K/I, \text{ or } V(a/h) =K/(K+I).$$

Following in the footsteps of Runde (1990), Vercelli (2011) claimed that Keynes was vague and ambiguous in his discussions of V. This led to three possible ways of MEASURING weight.

All three specifications are not only wrong, but impossible, since it is impossible for $V=V(a/h)=V(a/h_1,h_2,h_3,h_4,\dots,h_n,h_{n+1},\dots)$, a logical relation, to equal the mathematical variables K, I, or K+I, or any combination of them. It is impossible for $V(a/h) =1$ or 0 as claimed by A. Vercelli on p.154 of [45]. Further, it is impossible for V to be normalized on the unit interval, so that $0 < V(a/h_1,h_2,h_3,h_4,\dots,h_n,h_{n+1},\dots) < 1$, as also claimed by A. Vercelli on page 154. It is like claiming that the equality sign can be restricted to a specific interval, $0 < = < 1$.

Keynes's conventional coefficient of risk and weight is specified as the following mathematical equation:

$$c=p [1/(1+q)] [2w/(1+w)], \tag{2.1}$$

where p, q, w, and c are all defined on the unit interval between 0 and 1. That is because Keynes has defined a mathematical variable, w, that MEASURES the completeness of the relevant evidence. V is not w. V does not MEASURE ANYTHING. $V=w$.

A. Vercelli's final mathematical error occurs on page 163 Vercelli (2011). He claims that "...as suggested by Dow and Werlang:

$$c(P,A)=I-P(A)-P(Ac).....1-V(a/h).” \tag{2.2}$$

Of course, it is quite impossible to subtract or add a logical relation like V. A. Vercelli’s mathematical error can be corrected to read as

$$“....c(P,A)=1-P(A)-P(Ac).....(1-w), \tag{2.3}$$

where $V(a/h)=w$, and w is defined on the unit interval $0 \leq w \leq 1$. V can’t be defined on the unit interval.

Vercelli’s footnote on page 168, referring to his page 154, argues that he can apply the criterion of normalization to $V = K/(K+I)$, since Keynes did something like this this on p.348 of Keynes (1973) to w . He fails to point out that Keynes’s application on p.315 of Keynes (1921) is to a mathematical variable, w , and not a logical relation, V . The error appears on some pages of his article. For instance, on p.155, he states:

“The range of values of $V(a/h)$, as defined...goes from 0 to 1...”

This means that A. Vercelli is defining $0 < V(a/h_1, h_2, h_3, h_4, \dots, h_n, h_{n+1}, \dots) < 1$, which is mathematically and logically impossible.

In fact, such a definition is impossible since $V(a/h)$ is not MEASURING anything. It represents the LOGICAL strength of an argument.

3. Runde on the Evidential Weight of the Argument

The original misrepresentation of Keynes’s analysis in chapters 6 and 26 of the TP was contained in the many works of I.J. Good. In Runde (1990) sought to show that Keynes’s analysis was even more confused and confusing than the original claims of Good (1950). Runde completely ignored the work on chapters 6 and 26 contained in the 1922 reviews of the TP in Edgeworth (1922a, 1922b, Russell 1922, and Broad 1922). NONE of the faulty claims of Good and Runde are mentioned in those reviews.

Runde completely overlooked that an index to measure V by w was required in order to specify the mathematical equation that Keynes called his conventional coefficient of weight and risk, c . V is never mentioned in chapter 26 of the TP because it is not a mathematical variable. w is never mentioned in chapter 6 because it is a not a logical symbol, but a mathematical variable.

It was Good, who originally introduced the contradictory and inconsistent claims about

$$V(a/h) = K \tag{2.4}$$

which is basically a mathematical statement about a logical relation, into the literature.

The same conclusion holds for the Runde, who introduced the claim that:

$$V(a/h)=K/I \tag{2.5}$$

and the claim that

$$V(a/h)=K/(K+H). \tag{2.6}$$

The total absence in Runde (1990) of any serious assessment/analysis of Keynes’s conventional coefficient of weight and risk, c , which might have led him to ask the question, “What is w doing in the c coefficient formula?”, might have possibly averted the numerous, erroneous results that appear in Runde (1990). Runde (1990) also overlooked all of the early 1922 reviews of the TP by Broad, Russell, and Edgeworth.

Reading those contributions might well have saved Runde, and all of the economists and philosophers who have built on his foundation, from making the errors that they did.

Runde’s crucial oversight was his inability to grasp that:

$$V=V(a/h)=w, 0 \leq w \leq 1 \tag{2.7}$$

In 1990, Runde (1990, 279-283) claimed that Keynes had made statements in both chapters 6 and 26 of the TP that were ambiguous, unclear and confusing when compared with each other. This resulted in there being three possible definitions of evidential weight according to Runde.

The three different, supposed ways of measuring weight were:

$$V=K \tag{2.8}$$

$$V=K/I \tag{2.9}$$

$$V=K/(K+I) \tag{2.10}$$

Runde then claimed that one could divide both the numerator and denominator in (10) by K to obtain

$$V=1/[1+(I/K)]. \quad 2.11$$

Runde then created possible confusion by setting $w=I/K$ to obtain

$$V=1/(1+w). \quad 2.12$$

Runde's w is obviously in direct conflict with Keynes's w contained in Keynes (1921, 315).

None of this makes any sense. Runde had erred by failing to normalize on the unit interval $[0,1]$, so that $K+I=1$.

The only correct way to measure Keynes's evidential weight of the Argument is by Keynes's method, where one obtains the following answer:

$V=w, 0 \leq w \leq 1$, where w is the degree of the completeness of the information on which the probability is based on, so that $w=K/(K+I)$, where $0 \leq K/(K+I) \leq 1$ and $1-w = I/(K+I)$.

It is simple to check that.

$$w+(1-w)=1=[K/(K+I)]+[I/(K+I)]=(K+I)/(K+I)=1. \quad 2.13$$

Runde (1990) has continued to be cited in hundreds of articles and books since 1990. Its spread in academia for 34 years is covered in the following section.

The latest appearance of the erroneous results in Runde (1990) appears in Derbyshire, Feduzi & Runde in 2022 with two co-authors, A. Feduzi and J. Derbyshire. The paper is published as Derbyshire, *et al.* 2022. The errors appear in disguised form on pp. 4-7 in the journal, *European Management Review*. V appears nowhere in the article. Derbyshire, Feduzi & Runde in 2022 substitutes for Keynes's V relation, the Evidential Weight of the Argument, the variable EW, which is defined as Evidential Weight. The claim made is that EW can serve as a measure of uncertainty.

The correction of Runde's errors in 1990 was originally made in Brady (2004a, 2004b). In 2011, Vercelli (2011) attempted to correct Runde's mistaken and flawed analysis by normalizing V on the unit interval, so that:

$$0 \leq V \leq 1. \quad 2.14$$

However, this makes no sense at all because you can't restrict a logical relation to the unit interval.

4. On the Negative Consequences and Impacts of the Good and Runde Errors about Keynes's Evidential Weight of the Argument on Young Scholars just Starting Work on Keynes

This section will have two parts. Part A will cover (Brekel 2022). Part B will cover (Harris 2021).

Both Brekel (2022) and Harris (2021) have been negatively impacted, when reading Keynes's chapter 6 of the TP, because they built their work on errors originally made by I.J. Good and J. Runde. Good and Runde were accepted in the academic literature, that was published in academic journals and books, as having made correct assessments of Keynes's analysis, which was demonstrated to have been riddled with confusion and ambiguity.

Both Brekel and Harris have no understanding about what Keynes is doing in Chapter 26 of the TP at the technical, mathematical level. Both Brekel and Harris accept the basic, fundamental error made by both Good and Runde, that Keynes's V logical relation of evidential weight of the argument can be treated as a mathematical variable and made to equal numbers. Just as in Good and Runde, Brekel and Harris fail to normalize on the unit interval. Both Brekel and Harris overlook Keynes's definition of V as equal to w , the degree of the completeness of the information upon which the probability is based, which requires that w is normalized the unit interval.

There is only correct answer about how to measure weight. The answers given by Good and Runde do not appear anywhere in Keynes's *A Treatise on Probability*. They are invented in much the same way as the numerous false claims that litter both of F P Ramsey's 1922 and 1926 reviews.

Part A)-Brekel

Brekel's assessment of Keynes's evidential Weight of the Argument is in direct conflict with the 1922 assessments made by Edgeworth, Russell, and Broad, which Brekel is completely ignorant of.

The title of his thesis gives away the confused nature of his assessment. Consider a few the Brekel's statements:

- "a concept that is often immersed in confusion, Keynesian weight requires thorough philosophical explication prior to any sort of legitimate use in decision-making, legal proceedings, or scientific inquiry. In this thesis, I attempt to explicate Keynesian weight by arguing in favor of Jochen Runde's relative interpretation of Keynesian weight. The aim of Chapter 1 is to introduce the basic idea of Keynesian weight. In Chapter 2, I demonstrate that Keynes's initial analysis of Keynesian weight creates an interpretative puzzle - two viable

interpretations of Keynesian weight exist. Chapter 3 aims to solve the interpretative puzzle by consideration of how the interpretations of Keynesian weight respond to I.J. Good’s criticism of Keynesian weight.” (Brekel 2022, ii).

- “Unfortunately, Keynes’s logical approach to probability faces potentially insurmountable problems. Since the outset, Keynes faced criticisms for his unusual idea that probability arises from a rational assessment of the relation between the premises and conclusion of an argument.² Those criticisms, which began in earnest with Frank Ramsey’s review of TP,..” (Brekel 2022, 1).

I note that Keynes’s so called “... unusual idea that probability arises from a rational assessment of the relation between the premises and conclusion of an argument “follow directly from page 1 of Boole’s 1854 *The Laws of Thought*.

- “Regrettably, Keynesian weight faces substantial challenges prior to any sort of legitimate application. Due to the inherent difficulty of the concept, the debate surrounding Keynesian weight tends to generate more heat than light. When it comes to weight, concepts get conflated, and interpretations of concepts tend to become muddled together.

In this thesis, my most basic goal is to shed more light on Keynesian weight while attempting to avoid conflation and confusion. Although this thesis cannot solve every problem faced by Keynesian weight, I think it can help illuminate the way forward for solving many of those challenges. Illuminating Keynesian weight is not an easy task, and I do not expect to perfectly meet my aim. To briefly summarize what is to come, I will say that this is a thesis largely focused on the challenge of how best to interpret Keynesian weight.” (Brekel 2022, 4).

- At this point, it is worth noticing all the different concepts intertwined with Keynesian weight. The previous paragraph shows that Keynesian weight is closely related to confidence and surprise, but that the relationship between weight and these concepts is fuzzy at best.” (Brekel 2022, 19-20).

- “It is a tangential issue to this, but the potential conflation between weight of argument and weight of evidence implies that translating Keynesian weight to a different probability framework might cause us to lose valuable insight into what Keynes actually took the concept to mean. If O’Donnell’s conflation argument is right, perhaps none of the interpretations discussed in this thesis are what Keynes himself meant by weight. However, whatever I say in what follows should still be useful for subjective Bayesians who wish to add a concept like Keynesian weight in their epistemological toolkit.” (Brekel 2022, 26).

- “In Chapter 3, I attempt to use Runde’s relative weight interpretation in response to Good’s critique of Keynesian weight. Good’s critique will familiarize us with net weight of evidence. Ultimately, I think a careful reading of Good’s critique demonstrates the way in which Keynesian weight remains a measure of gross weight, even on Runde’s relative weight interpretation of Keynesian weight. By remaining a form of gross weight, the relative weight interpretation of Keynesian weight becomes the best interpretation of Keynesian weight available. Be that as it may, this chapter shows that Keynesian weight is shrouded in confusion.” (Brekel 2022, 30).

Brekel needed to have carefully read pp.310-315 of the TP in order to recognize the erroneous nature of Runde’s work. Reading and comprehending these pages would have saved Brekel a lot of confusion:

“We could, if we liked, define a conventional coefficient c of weight and risk, such as $c = 2pw / [(1+q)(1+w)]$, where w measures the ‘weight,’ which is equal to unity when $p = 1$ and $w = 1$, and to zero when $p = 0$ or $w = 0$, and has an intermediate value in other cases. (Keynes 1921, 315; Keynes 1973, 345; italics added).

The only correct answer is that $V = V(h/a) = w$, $0 \leq w \leq 1$.

All of the answers listed by Brekel (2022) in his chart on Brekel (2022, 47) below appear NOWHERE in the

TP:

“Keynesian weight.

Table 2.1: List of names, suggested notations, and textual support of the considered interpretations of Keynesian weight. In the notation column, K is short for ‘Knowledge’ and I is short for ‘Ignorance’. Suggested notation is based on Runde’s “Keynesian Uncertainty and the Weight of Arguments,” 280-1.

Interpretations of Keynesian Weight

Name Suggested	Notation	Textual Support (pages)
Monotonic Weight :	K	TP: 78, 79, 85
Relative Weight (odds):	K/I	TP: 78, 85
Relative Weight (comp):	$K/(I+K)$	TP: 85, 357-8, 358.” (Brekel 2022, 47)

The pages being cited by Brekel are from the problematic CWJMK 1973 edition with the intellectually dangerous, disingenuous and extremely flawed editorial foreword by the Ramsey advocate and supporter,

Richard Braithwaite. Reading this editorial foreword can only severely bias any new reader considering the task of reading Keynes's book.

Part B)-Harris

The assessment made by Harris (2021) of Keynes's evidential weight of the argument, V , is very similar to the assessment made by Brekel (2022):

"...according to Keynes an argument from premises E to conclusion H has, in addition to a probability $\Pr(H|E)$, also a weight $V(H|E)$.

However, despite this passage is often quoted to allude to what Keynes has in mind with his notion of the weight of an argument, what this concept actually consists in according to Keynes is far from clear; for as Runde (1990) remarks, one can distinguish two conceptually different notions of the weight of an argument in Keynes's *Treatise*." (Harris 2021, 207).

Unfortunately, Harris is completely confused here because she has failed, like Brekel, to read pp. 310-315, where Keynes actually defines weight very clearly in an unambiguous manner as a measurable, mathematical variable, w : $V=V(a/h)=w, 0 \leq w \leq 1$, where w measures the degree of the completeness of the information upon which the probability is based.

Runde's so called three different interpretations of weight are due to Runde's mathematical and logical confusions. The Runde formulations have absolutely nothing to do with anything that appears in Keynes's book, just as I.J. Good's interpretation of evidential weight as gross weight doesn't appear anywhere in Keynes's TP. There is no such measure defined by Keynes as $V=V(a/h)=K$ that appears in anything written by Keynes in the TP or in his lifetime. This formulation involves a gross error that was repeated by Good for 40 years. Harris simply repeats this error.

In conclusion, the many errors of Good and Runde, like the immense number of errors committed by F P Ramsey (1922, 1926) in his 1922 and 1926 reviews of the Keynes (1921, 1973), were never corrected by any academician, philosopher or economist at anytime in the 20th or 21st century. These errors presently serve in 2023 as the foundation upon which current assessments of Keynes's TP are based. The only refutation of Ramsey's attacks on Keynes was made by Russell in 1922.

This result leads to a conclusion that is precisely identical to I. Hishiyama's observation in Hishiyama (1969) - the fundamental problem that appears in practically all work done on Keynes, starting with Baylis (1935), is that Keynes's *A Treatise on Probability* was never actually read. I am simply extending Hishiyama's observation, first made in 1969 to the year 2023.

Conclusions

The crucial error made from Baylis (1935), in 1935 through Derbyshire, Feduzi and Runde in 2022 is the failure to deal with the analysis on p. 315 of the TP. The philosophers listed in my references (Hishiyama 1969, Joyce 2005, Peden 2018, Weatherson 2002) make the same types of mistakes as originally made by Baylis, I.J. Good and Runde. I do not see the need to duplicate the analysis in demonstrating what the basic problem is in their work. However, the interested reader can read (Brady 2012, 2018a, 2018b, 2020a, 2020b). The basic problem involves three mistaken mathematical representations of Keynes's logical relation, V :

K , K/I , and $K/(K+I)$.

The result of these errors in the literature can be seen in the latest work in the philosophy field produced by Brekel (2022) and Harris (2021). Brekel (2022) and Harris (2021) base their work on, and just pass along, the erroneous results of Good (1950, 1960, 1962, 1965, 1967, 1967, 1968/70, 1970/71, 1975, 1983a, 1983b, 1985, 1988 Good and Toulmin 1968 and Runde (1990). They analyze V as a mathematical variable and have NO IDEA that Keynes measures the evidential weight of the argument by w , where w is defined on the unit interval and must come in degrees based on his index to measure the weight of the evidence, which appears in the h propositions of the premises contained in Keynes's relational, propositional, symbolic logic.

The major error made by I.J. Good was to insist that Keynes's V relation of weight, V , was equal to the absolute amount of the knowledge, K , so that $V=K$.

Isaac Levi, in 1967 in his *Gambling with Truth*, claimed that Keynes had never constructed an index to measure the evidential weight of the Argument, V , which Keynes did. Keynes's index appears in (Keynes 1921, 315; Keynes 1973, 345).

The reason for the constant and continuing 100 years of misrepresentation and misinterpretations of Keynes's work in the TP is the utter and complete failure of all economists and philosophers writing on Keynes to have covered what can be called the Keynes-Boole (1985) connection. Keynes's research program was based on

extending and applying the work of Boole in logic and probability to probability, statistics, and economics. The *General Theory* is built on Keynes's inexact measurement and approximation approaches that appeared in chapters 15, 17, and 26 of the TP.

These errors were then picked up by economists and philosophers and made the foundation for all of their assessments of Keynes's work starting with a paper by J. Runde (1990). It is quite impossible to add, subtract, divide, and multiply logical relations like P and V. This obvious fact has gone unrecognized in the literature for 73 years.

The latest authors to integrate the errors of Good and Runde into their work are Berkel (2022) and Harris (2021). Both Berkel and Harris conclude that discussions of Keynes's concept of weight, V, are a hopeless, intellectual mess of confusion and contradiction. The reality, based on what Keynes actually wrote, is the exact opposite.

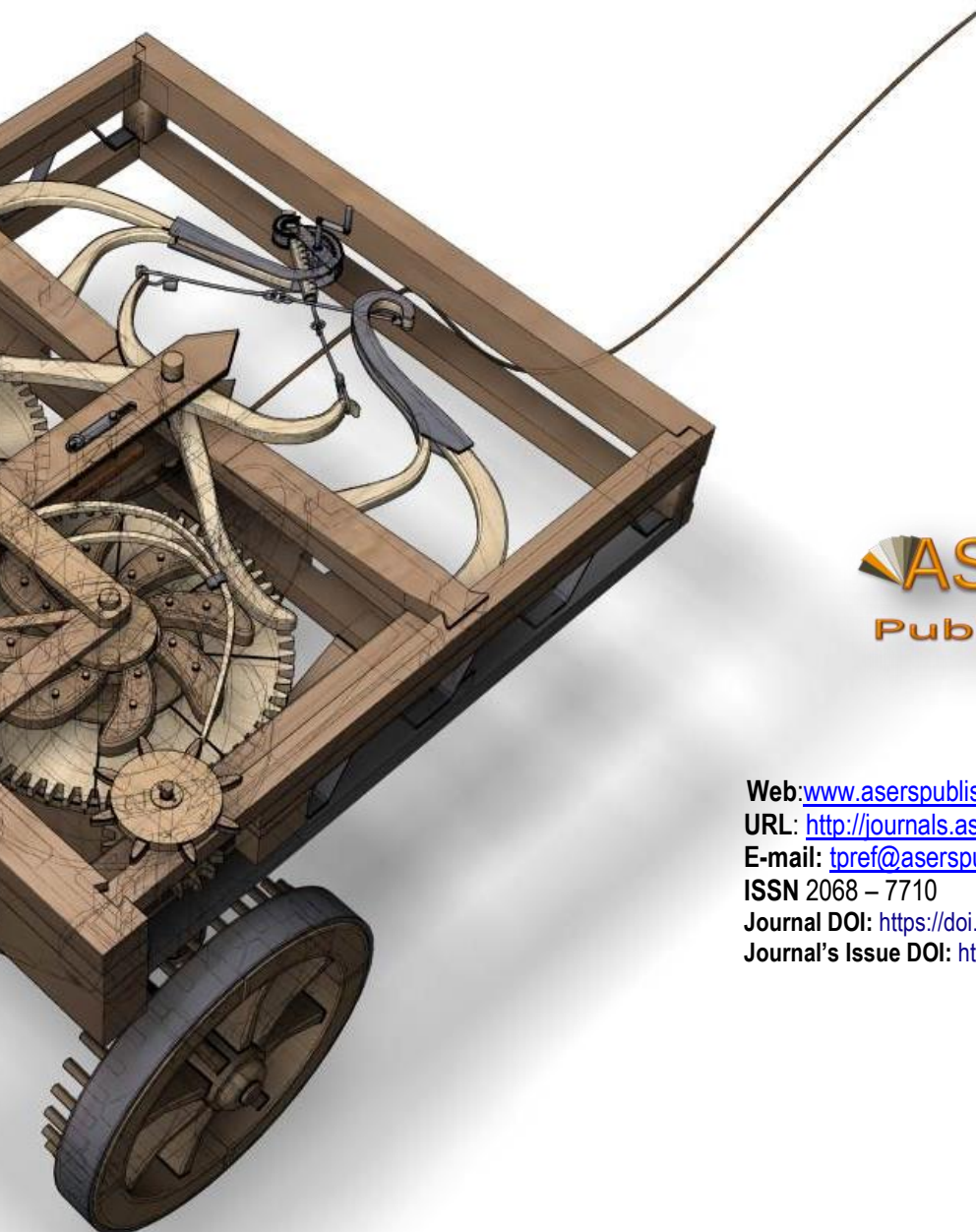
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